EA SPORTS™ NASCAR® Racing Motion Platform

Operation & Service Manual

040-0167-01 Rev. B

For Software Version 1.5

- **Read this manual before use.**
- **Keep this manual with the machine at all times.**

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Preface

Safety

Please read this page before preparing your arcade cabinet for game play.

The following safety instructions apply to all game operators and service personnel. Specific warnings and cautions will be included throughout this manual.

Use the following safety guidelines to help protect the system from potential damage and to ensure your personal safety:

- Electronic components in the game cabinet run on 115 VAC. The voltage switch on the back of the computer must be set to 115. If you power up the computer outside of the cabinet, set the switch to match the local AC voltage:
  - 115 volts / 60Hz in most of North and South America and some Far Eastern countries such as Japan, South Korea and Taiwan
  - 230 volts / 50Hz in most of Europe, the Middle East and the Far East
- To help prevent electric shock, plug the system into a properly grounded power source. These cables are equipped with 3-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.
- To help protect your system from sudden increases and decreases in electrical power, use a surge suppressor, line conditioner or Uninterruptible Power Supply (UPS).
- Be sure nothing rests on the system's cables and that the cables are not located where they can be stepped on or tripped over.
- Keep your system far away from radiators and other heat sources.
- Do not block cooling vents.

Precautions for Game Operation

GLOBAL VR® assumes no liability for injuries incurred while playing our games.

Operators should be aware that certain health and physical conditions may make people susceptible to injury when playing video games, particularly when the game moves or creates a sense of motion.

Warnings

To avoid electrical shock, unplug the cabinet before performing installation or service procedures.

If a power cord is damaged, it must be replaced by the equivalent power cord available from GLOBAL VR or your distributor.

GLOBAL VR® assumes no liability for any damages or injuries incurred while setting up or servicing the cabinet. Only qualified service personnel should perform installation or service procedures!

Environmental Conditions

Cabinet is intended for indoor use only. Be sure to keep the cabinet dry and maintain operating temperatures of 59°—86°F (15°—30°C).

FCC Notices (United States)

Electromagnetic Interference (EMI) is any signal or emission radiated in free space or conducted along power or signal leads, that endangers the functioning of radio navigation or other safety service, or that seriously degrades, obstructs, or repeatedly interrupts a licensed radio communications service. Radio communications services include, but are not limited to, AM/FM commercial broadcast, television, cellular services, radar, air-traffic control, pager, and Personal Communication Services (PCS). These licensed services, along with unintentional radiators such as digital devices (including computer systems) contribute to the electromagnetic environment.

Electromagnetic Compatibility (EMC) is the ability of items of electronic equipment to function properly together in the electronic environment. While this computer system has been designed and determined to be compliant with regulatory agency limits for EMI, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio communications services, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Relocate the cabinet relative to the receiver.
- Plug the game into a different outlet so that the computer and the receiver are on different branch circuits.

If necessary, consult a Regulatory EMC representative of GLOBAL VR® or an experienced radio/television technician for additional suggestions. You may find the FCC Interference Handbook, to be helpful. It is available from the U.S. Government Print Office, Washington, DC 20402.

This device has been tested and complies with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

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Chapter 1 — Introduction

EA SPORTS™ NASCAR® Racing: *A Whole Lot More Than Left-hand Turns*

Game Features

- Race bumper to bumper at speeds over 200 MPH
- Fight your way past 30 opponents to capture the lead
- Sling-shot your car into winning position by earning draft-boosts
- Eight tracks with increasing difficulty let players choose the right play level
- Multi-player mode allows up to 10 players to race head-to-head to beat their friends
- Link Motion and Non-Motion cabinets
- Unique racecar cabinet design

Specifications

Note: Specifications are subject to change without prior notification.

Shipping Dimensions (L x W x H)	**Display Cabinet:** 37.5" x 56" x 86" **Motion Base:** 78.5" x 40" x 65.5"
Installed Dimensions	Total Length, Assembled: 98.5" Display Cabinet Width: 54.5" Motion Base Width: 34"
Approximate Weight	850 lbs (386 kg)
- Display Cabinet Weight (Approx.)	400 lbs (181 kg)
- Motion Base Weight (Approx.)	450 lbs (204kg)
Audio	6-Channel Surround Sound
Coin Inputs	Dual coin Mechs Installed Supports Dollar Bill Validator
Voltage & Power Requirements (Power requirements are shown for 115 VAC.)	**Display Cabinet:** 110 VAC, 5 Amps, 50/60 Hz **Motion Base:** 220 VAC, stepped up from 110 VAC, 6 amps, 50/60 Hz input voltage.
Monitor	Widescreen DLP Monitor, DVI to HDMI
Computer System	● Windows XP Embedded Operating System ● Pentium® D Computer ● Nvidia® GeForce Graphics Card ● 1 gigabyte RAM
Motion System	3 degrees of freedom (DOF) Mini Motion Base: 220 VAC, 3 phase motor-driven actuators
Motors	3 Motors: 220VAC, 50/60Hz, 1/2 Hp 3phase
Player Weight Limit	300 lbs.
Seat	High-back seat with built-in speakers for surround-sound effect
Control Inputs and Outputs	Force-Feedback Steering, Lighted Control Panel Buttons, 4-Speed Shifter, Gas & Brake pedals

CAUTION: This game has 2 separate power cords! These cords should be connected to a dedicated 20 Amp circuit. No other appliance or game should share the circuit with this game.

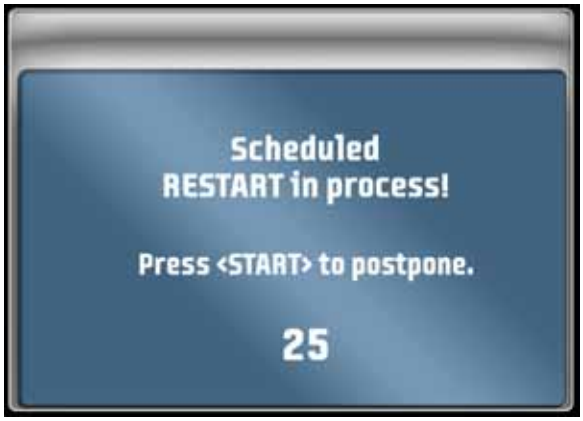
Game Restart Feature

To keep the software running optimally, the cabinet must be restarted every 24 hours.

For locations that turn their games off every day, no additional restarts are needed.

For locations that leave their games turned on continuously, the software will automatically restart the game once every 24 hours according to the following conditions:

1. If the game has been running continuously for at least 24 hours,
   and the game has been in Attract Mode for at least 15 minutes,
   then the following screen will be displayed:



2. The screen will count down for 30 seconds.

   If a user presses the **START** button, the screen will not appear again until the next time the Attract Mode has been running for 15 minutes.

   If nobody presses the **START** button, the game will shut down and restart, which will take about 5 minutes.

3. After the cabinet completes the Restart, the next Restart will be scheduled for 24 hours later. If the initial Restart happens to be scheduled during a busy time for your location, the action of players pressing START to postpone will move the restart to a time that is not busy.

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Chapter 2 — Installing a New Cabinet

Installation Kit

Locate the following items for setting up your cabinet:

Description	Qty
Operation & Service Manual (This Document)	1
Major Assemblies: Motion Base, Display Cabinet, and Coin Tower	1 of each
Spacer Block (Fits between Coin Tower & Motion Base)	1
Interconnect Bridge (Fits between Display Cabinet & Motion Base)	1
Mounting Bracket, Bridge to Display Cabinet	2
Mounting Bracket, Bridge to Motion Base	2
Mounting Hardware (Nuts, Bolts, & Washers) Located in Cash Box	

Unpacking the Motion Base

Refer to Figure 34 on page 75 for Motion Base components.

1. Carefully remove the motion base from its packaging. Inspect the exterior for any damage.
2. Remove the bolts holding the plywood sheet in place behind the motion base on the pallet.
3. Position the plywood sheet to use as a ramp for rolling the motion base off the pallet.
4. Release the strap that holds the motion base in place.
5. Raise the leg levelers located on the undersides of the motion base and roll it down the ramp.
6. Keep the pallet and ramp for transporting the unit in the future.

Unpacking the Display Cabinet

1. Cut the shipping straps and carefully remove the packaging material. Inspect the cabinet exterior for any damage.
2. Gently slide or lift the cabinet off the pallet. (Using a Forklift is recommended.)

Precautions for Installation

WARNING

AVOID FIRE HAZARD: Do not install in an area where the game would be an obstacle in case of an emergency (i.e. Near Fire Equipment or Emergency Exits).

This game cabinet was designed for **indoor use only**. To ensure trouble free and safe operation, the following conditions must be met:

- The game must not be exposed to direct sunlight, high humidity, dust, salt mist, high heat, or extreme cold. If installed in an unusually hot location, allow additional clearance between the air vents in the cabinet and any structure or object that would tend to restrict air circulation.
- During game operation, forces are produced that may cause the Motion Base to travel if not properly installed. Before operating the game, make sure that the Motion Base and Display Cabinet are firmly secured to the Interconnect Bridge, the leg levelers are properly adjusted, and caster wheels are locked in the up position, as described in the sections that follow.

Cabinet Set-Up Procedure

Move the Display Cabinet and the Motion Base to the location where they will be operated. Perform the steps in the following sections to set up the game.

1. Connect Motion Base Harnesses

Refer to Figure 2 on page 10, and Figure 34 on page 75 and perform the following steps:

1. Place the Motion Base about 24" in front of the Display Cabinet.
2. Open the front access door on the Display Cabinet and locate the cables bundled inside. You should find the cables listed below. Most of the corresponding connectors are color-coded.
   a. Steering Pot Cable (Gray)
   b. Steering Motor Power Cable (Blue)
   c. Dash Button Cable (Yellow)
   d. Gas & Brake Cable (White)
   e. Shifter Cable (Violet)
   f. Digital-to-Analog Converter Cable
   g. Coin & Test Panel Cable (Orange)
   h. AC to Dollar Bill Validator
3. Place the Interconnect Bridge between the Display Cabinet and Motion Base with a gap on each side to make it easier to route wires. Make sure the taller side of the Bridge faces the Display Cabinet. Unlock and remove the top cover from the Bridge.

   Note: Do not secure the sections together until you finish testing the game.
4. Connect cables **a—f** between the Motion Base and Display Cabinet, routing them through the Interconnect Bridge. Cable **f** connects directly to the Data Distribution Box (DDB); the others connect to the corresponding cables.

2. Connect Coin Tower Harnesses

1. The Coin Tower Assembly can be installed on either the left or the right side of the Motion Base.
2. Line up the Coin Tower Assembly as shown in Figure 2.
3. Route the **Motion STOP Harness** (with green color-code label) from the Coin Tower into the Motion Base and connect it to the corresponding cable from the Data Distribution Box (DDB) (see Figure 35 on page 76).
4. Route the **Coin & Test Panel Harness** and **Dollar Bill Validator Power Cord** (if used) from the Coin Tower through the Motion Base into the Interconnect Bridge. Connect each cable to the corresponding harness connector (**g** and **h**) from the Display Cabinet.

3. Test the Game

IMPORTANT: This game requires a dedicated **20 Amp** circuit. Do not connect anything else to this circuit.

1. Make sure that all harnesses are properly connected..
2. Measure the AC line voltage (LINE to GND and LINE to NEUT) at the wall outlets and verify that it is between 110 and 125 VAC. NEUT to GND voltage should be less than 1 VAC.
3. Connect the two power cables to the AC power plate on the rear of the display cabinet (see Figure 1), and then connect them to the AC wall outlets.

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Figure 1. AC Power Plate

4. Turn ON the Display Cabinet ON/OFF Switch and the Motion Base Power Breaker, located on the AC Power Plate where you connected the power cords.

   Note: It may take a few minutes before an image appears on the monitor.

5. Make sure that the Motion Base and Display Cabinet both power up, and all of the cooling fans are operating. See Figure 33 on page 74 for fan locations.

   Note: The steering system will self-calibrate. Do not touch the wheel while it is calibrating.

6. Pull up the red Motion STOP Button and verify that the motion platform remains level. If it does not, refer to *Motor and Potentiometer Calibration* on page 36.

7. Press the **TEST** button inside the coin door and select **Diagnostics** from the Operator Menu.
   - Select **Controls** to test steering, pedals, buttons, and shifter.
   - Select **Sound Test** to test audio.
   - Select **Motion Test** to test the motion drive motors.

8. Play a game to verify everything is working properly.

4. Secure the Sections

1. If everything is working properly, push the sections together (be careful not to pinch any wires) and secure the Interconnect Bridge to the Motion Base and Display Cabinet using the Mounting Brackets and hardware provided in the Cash Box, as shown in Figure 2. Place the top cover over the Bridge and lock it.

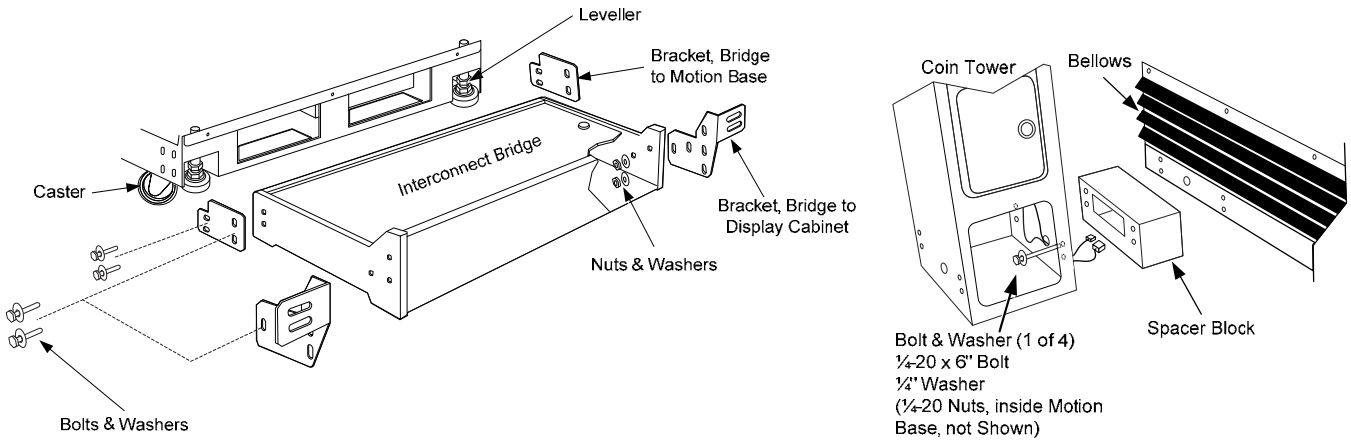

Figure 2. Securing the Sections

2. Secure the Coin Tower Assembly with the nuts, bolts, and washers located in the Cash Box, as shown in Figure 2.
3. Lower the six (6) leg levelers so that the Caster wheels are lifted from the floor. After the Caster wheels are lifted off the floor, lock them in place with the jam nuts.

Linking Cabinets

You can **link up to Ten** Motion and/or Non-Motion Cabinets for head-to-head competition. Once the cabinets are linked in hardware and software, the Attract Mode movies will synchronize, and players can choose to play individually or race against other players.

Each cabinet ships with a CAT-5 Ethernet cable. Use this cable to link two cabinets directly, or connect it to an Ethernet hub or switch to link more than two cabinets. A 10/100/1000 Mbps (Gigabit) hub or switch is recommended. GLOBAL VR has tested linking with the following switches:

- 5-Port Switch: LINKSYS® SD205
- 16-Port Switch: D-Link® DSS-16+

Important: DO NOT use crossover couplers to link this game**.** The motherboard automatically detects a direct connection to another game. Crossover couplers shipped with older racing games **will not work**.

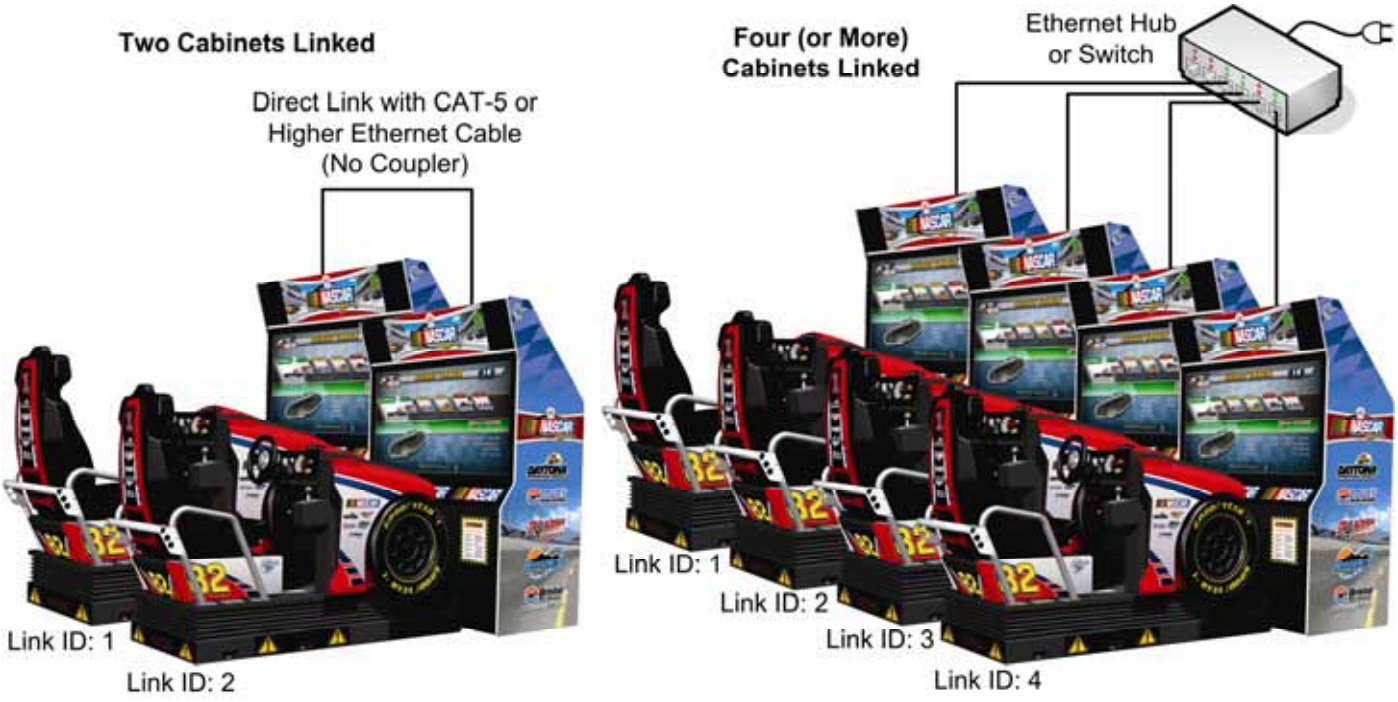
Two Cabinets Linked
Direct Link with CAT-5 or Higher Ethernet Cable (No Coupler)
Link ID: 1
Link ID: 2
Four (or More) Cabinets Linked
Ethernet Hub or Switch
Link ID: 1
Link ID: 2
Link ID: 3
Link ID: 4

Figure 3. Linking Cabinets

1. **Before connecting the Ethernet cables** open the Operator Menu **Machine Settings: Settings** menu on each cabinet and set the Link ID number. Cabinets should be numbered in sequence from left to right, and each cabinet must have a unique number: 1, 2, 3, etc. Exit the Operator Menu to reset the number in the software.

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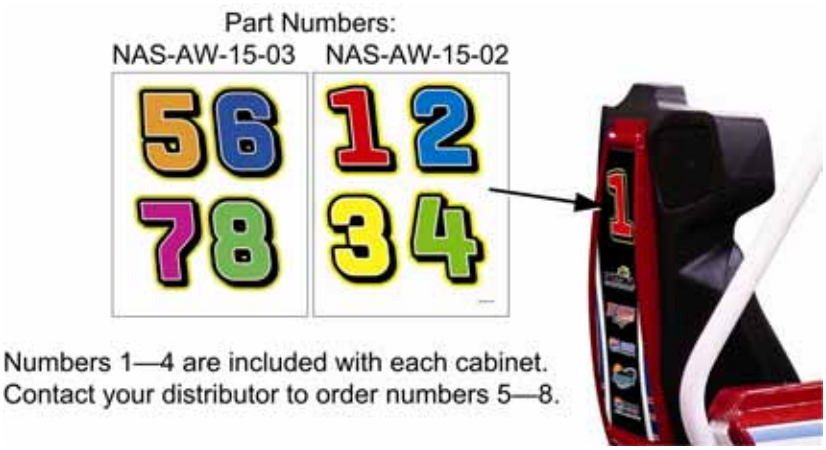
Note: If you skip a number in the cabinet ID sequence, such as numbering cabinets 1, 2, 3, & 5, the skipped number will show up as an empty outline in the **WAITING FOR OTHERS** screen (see page 14).

Important: All linked cabinets must run the same **Software Comm Version**, displayed in the Operator Menu **Machine Info** screen.

2. **To link two cabinets**: Connect one Ethernet cable between the Ethernet ports on the power plate of each cabinet. **DO NOT use a crossover coupler.**
3. **To link more than two cabinets**: Connect an Ethernet cable from the Ethernet port on the power plate of each cabinet to an Ethernet hub or switch (not included) that supports 100 Mbps connection speed. (See recommended switches on the previous page.) **DO NOT use a crossover coupler**. Connect the Hub or Switch to AC power.
4. Locate the number decals included with each cabinet, and place the appropriate number on the back of the seat of each linked cabinet to show players which number they are in the race.



Linking Errors

1. If more than one cabinet has the same Cabinet Link ID number, these cabinets will not link. Repeat Step 1 to correct duplicate Link ID numbers.

   If the software detects a duplicate Link ID number, the *Select A Link ID* menu, shown below, will automatically appear and prompt you to change the number.

Select A Link ID
Link IDs should be in sequential order
starting with the leftmost cabinet
1 2 3 4 5 6 7 8 9 10
Use the steering wheel to change the number. Press <START> when done.

2. Make sure the Game Settings and Coin Settings are the same for all linked cabinets. You will have unhappy customers if a setting such as *Winner Gets Free Game* is enabled on some cabinets and disabled on others. If the settings listed below are mismatched on a set of linked cabinets, a Blue Dot will appear in the Attract Mode, and you will see an explanation of the problem on the **Machine Settings: Info** screen.

   - Software Comm Version
   - Free Game
   - Link ID
   - Free Game Min Players
   - Race Length
   - Disabled Tracks

   All linked cabinets must run the same Software Comm Version and have a Game Dongle set for the same region. A screen like the one below, that shows cabinet 1 running software version 1.5 and cabinet 2 running 1.1, will appear it there is a mismatch.

Checking the Game Dongle

The cabinet uses a Game Dongle to activate the game software. If the dongle is missing, the game will not run. When a USB Game Dongle is installed and working properly, a **red** LED will illuminate inside the dongle.

For a Game Dongle to be recognized correctly, it should be connected before the cabinet is powered ON. If the software does not recognize the Game Dongle, make sure the Dongle is connected properly, and then power cycle the cabinet to see if this resolves the problem.

If the dongle should come out while the game is running, a NO DONGLE screen will appear. If this happens, the dongle can be re-installed without rebooting the game.

Note: The dongle supplied with the cabinet is specific to the game software version. Future software upgrades may require a new dongle.

Important: Some of your cabinet information is stored in the dongle, so if you replace your computer, **remove the dongle and keep it with the cabinet**.

Figure 4. USB Game Dongles

Cabinet Tear-Down

Refer to *Cabinet Tear-Down* Procedure on page 54 for instructions on disassembling and repacking the EA SPORTS™ NASCAR® Racing Motion Cabinet.

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Chapter 3 — Driving a Race

1. **Select Driver**: This screen appears after you insert coins and press **START** or the gas pedal. Turn the Wheel to highlight a driver. Each screen displays stats about the driver. Press the Gas Pedal to select.

   Note: If the countdown in the upper right corner reaches **0** on any selection screen, the highlighted item is automatically selected.

2. **Select Transmission**: Turn the wheel to select Automatic or Manual (Stick Shift), and press the Gas Pedal to select.

   Note: Select Track is not available if another driver in a linked cabinet is on the Waiting for Others screen. In this case you will automatically join that player's race.

3. **Select Track**: Turn the wheel to select a track. Each screen displays stats about the track. Press the Gas Pedal to select.

   Tracks are rated by difficulty, *Normal*, *Hard*, or *Expert*. Expert and Hard tracks can be locked to keep novice players from selecting them accidentally (see Game Settings: Settings Menu on page 20). If tracks are locked, press the ♪ button to unlock.

4. **Waiting for Others**: If the cabinet is linked, this screen gives other players 30 seconds to join the race. Press **START** or the Gas Pedal to speed up the countdown.

   Your cabinet will be shown in green, with a pulsing edge, and say ***READY***.

   Cabinets shown in blue, that say ***AVAILABLE***, are ready for new players to coin up.

   Cabinets shown in orange or yellow, that say ***JOINING***, are in the process of joining the race. Once they join, they will turn green and say ***READY***.

   Cabinets shown in gray are in the Operator Menu.

   Cabinets shown only as a white outline are already in a race or not connected.

Note: Players cannot start a solo race while the Waiting for Others screen is displayed on a linked cabinet.

To activate motion, pull up on the Motion STOP Button on top of the Coin Tower. A prompt will appear onscreen if motion is not activated during game play.

Once the race starts, useful information is displayed on the screen, as shown below.

Number, Position, and Driver of Next Car Ahead of You
Time Remaining to Reach Next Checkpoint
Current Lap / Total Laps in Race
Your Position
Your Time on the Current Lap
Your Best Lap Time
Gap Between You and Leader
Time Since Start of Race
Indicates Amount of Draft Accumulated
Bright Green Indicates you are Drafting off the Car Ahead
Track Logo
Indicates When You have Enough Draft to Boost
Engine RPMs & Gear Number
Your Speed

Figure 5. Typical Race Screen

The **DRAFTING** indicator shows when you have accumulated enough draft off the car ahead of you to get a burst of speed to pass. Once **BOOST READY** lights up, you can slingshot around the car ahead.

When you make it into first place, the **Leader Light** will light up below the marquee.

To quit a game (in a solo race only), press all four control panel buttons at the same time. (This feature is useful to Operators who want to test the game and then quickly return it to Attract Mode. It can be Disabled or Enabled from the Operator **Game Settings: Settings** Menu.)

As you drive, you can press the **LOOK BACK** button to see what's happening behind you.

Press the **VIEW** button to change your view of the race.

Press the ♪ button to turn down the music. Press again to stop the song that is playing. Press a third time to start a new song.

Note: Not all tracks and drivers are available in the international version.

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Chapter 4 — Operator Menu and Game Setup

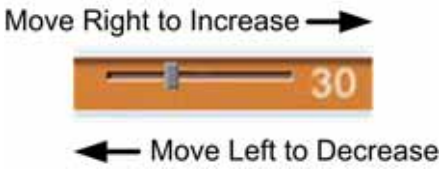
This chapter describes how to use the Game Operator menu to set up the game, diagnose problems, and view gameplay and earnings statistics.

Navigating the Operator Menu

1. With the game running in Attract Mode, open the coin door and press the **TEST/BACK** button on the Operator Button Panel to open the Operator **Main Menu**.

Figure 6. Operator Button Panel

2. Use the driving controls to change settings as described below.
3. Once you enter the Operator Menu, use the **VIEW** and ♪ buttons to move up and down through the main list on the left side of the screen. Pause over a menu item to open the submenu below it, and then use the **VIEW** and ♪ buttons to move through the submenu items.
4. When you move over a submenu item, a blue highlight will appear around the item. Press the **START** button to open the associated menu or screen.
5. Once you open a menu, use the **VIEW** and ♪ buttons to navigate through the menu items. Press **START** to select an item and change its setting
6. Some menu items, such as volume levels (see Figure 9 on page 19) use sliders to set numeric values. A slider, as shown below, will appear when you highlight the item and press **START**. To set the slider, press the **VIEW** and ♪ buttons to increase or decrease the value, and then press **START** again to save the selected value.



7. Some items use popup menus to select settings, as shown below. The popup menu will appear when you highlight the item and press **START**. Press the **VIEW** and ♪ buttons to select from the popup menu, and then press **START** again to save the selected value.

8. When you finish with a menu, press the **LOOK BACK** button to return to the main menu list on the left side of the screen.
9. To exit from the Operator Menu, select **Resume Game** at the bottom of the menu list and press **START**.

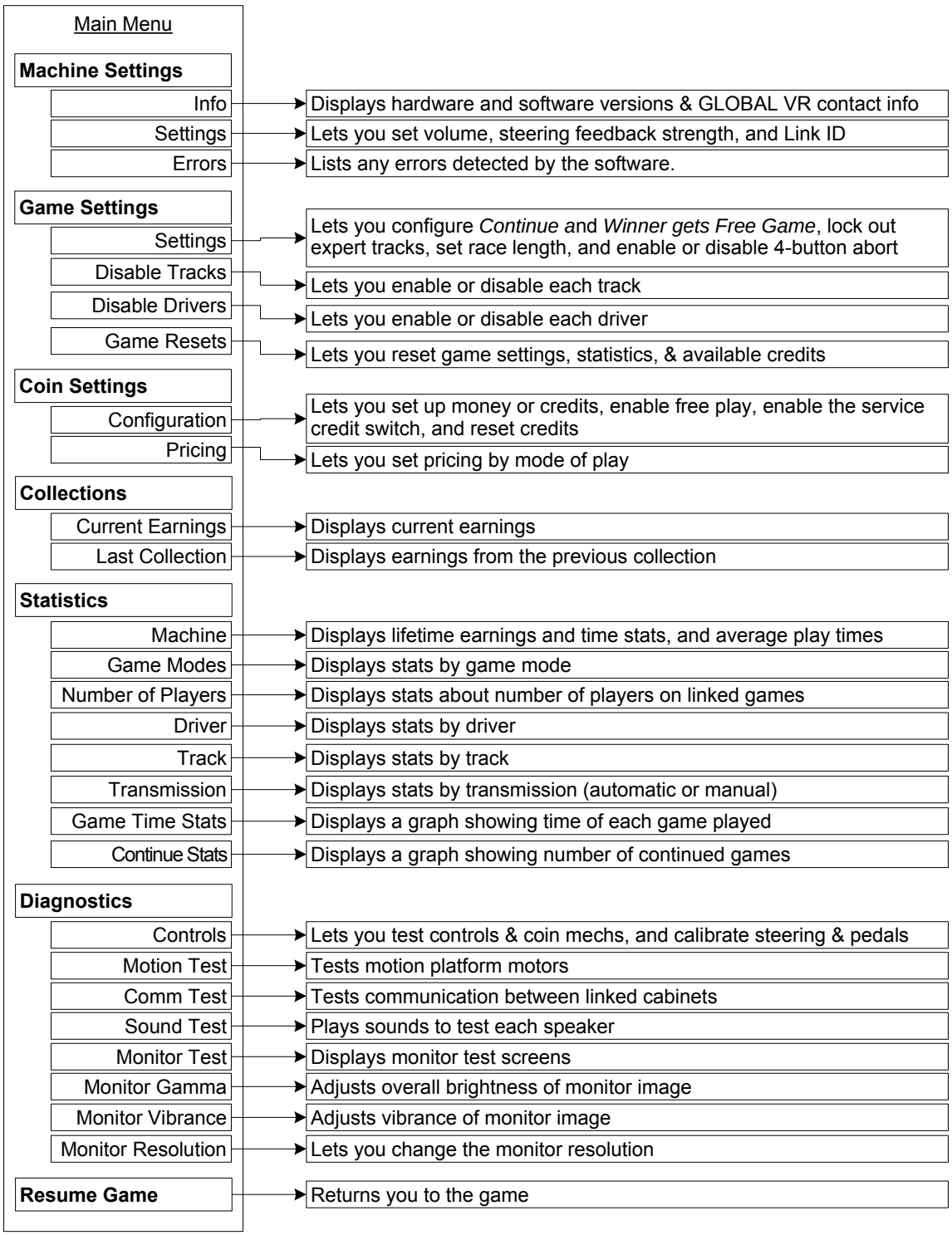

Main Menu
Machine Settings
Info
Displays hardware and software versions & GLOBAL VR contact info
Settings
Lets you set volume, steering feedback strength, and Link ID
Errors
Lists any errors detected by the software.
Game Settings
Settings
Lets you configure Continue and Winner gets Free Game, lock out expert tracks, set race length, and enable or disable 4-button abort
Disable Tracks
Lets you enable or disable each track
Disable Drivers
Lets you enable or disable each driver
Game Resets
Lets you reset game settings, statistics, & available credits
Coin Settings
Configuration
Lets you set up money or credits, enable free play, enable the service credit switch, and reset credits
Pricing
Lets you set pricing by mode of play
Collections
Current Earnings
Displays current earnings
Last Collection
Displays earnings from the previous collection
Statistics
Machine
Displays lifetime earnings and time stats, and average play times
Game Modes
Displays stats by game mode
Number of Players
Displays stats about number of players on linked games
Driver
Displays stats by driver
Track
Displays stats by track
Transmission
Displays stats by transmission (automatic or manual)
Game Time Stats
Displays a graph showing time of each game played
Continue Stats
Displays a graph showing number of continued games
Diagnostics
Controls
Lets you test controls & coin mechs, and calibrate steering & pedals
Motion Test
Tests motion platform motors
Comm Test
Tests communication between linked cabinets
Sound Test
Plays sounds to test each speaker
Monitor Test
Displays monitor test screens
Monitor Gamma
Adjusts overall brightness of monitor image
Monitor Vibrance
Adjusts vibrance of monitor image
Monitor Resolution
Lets you change the monitor resolution
Resume Game
Returns you to the game

Figure 7. Operator Menu Flowchart

Note: The **current date and time** is displayed on each menu screen. If you need to change the date or time, refer to *Setting the Date and Time* on page 58. The date and time only appears on Operator Menu screens and does not affect gameplay.

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Machine Settings: Info Screen

This is the first screen displayed when you press the **TEST/BACK** Button. It displays important information about the cabinet, and contact information for GLOBAL VR.

Note that the box near the bottom of most Operator Menu screens shows you how to navigate through the menus using the game control panel.

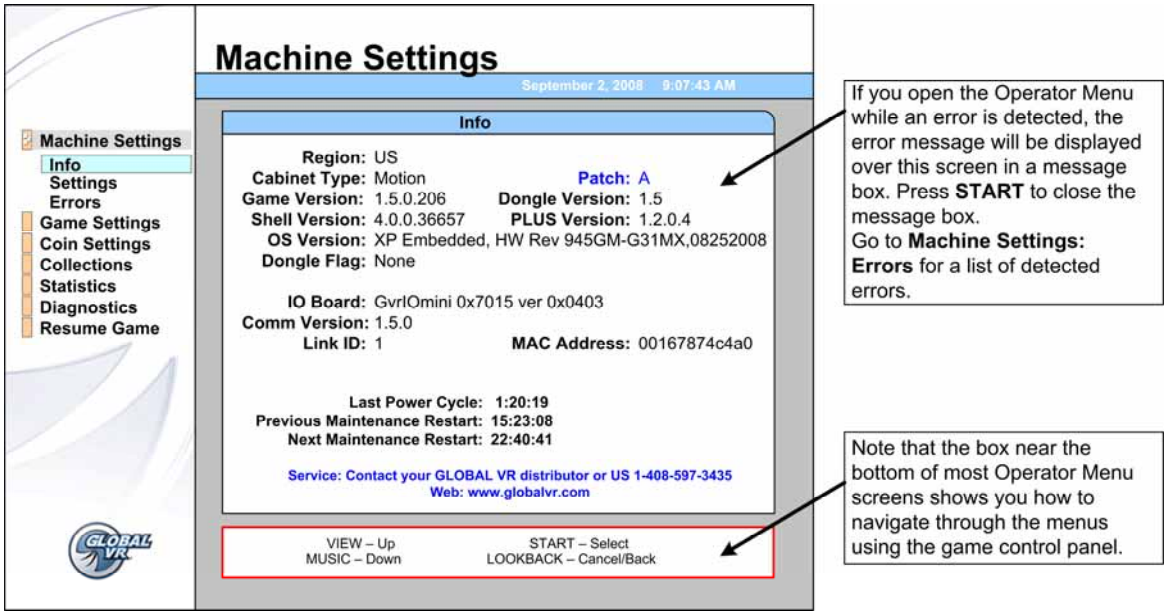
Machine Settings
September 2, 2008 9:07:43 AM
Machine Settings
Info
Settings
Errors
Game Settings
Coin Settings
Collections
Statistics
Diagnostics
Resume Game
Info
Region: US
Cabinet Type: Motion
Patch: A
Game Version: 1.5.0.206
Dongle Version: 1.5
Shell Version: 4.0.0.36657
PLUS Version: 1.2.0.4
OS Version: XP Embedded, HW Rev 945GM-G31MX,08252008
Dongle Flag: None
IO Board: GvrlOmini 0x7015 ver 0x0403
Comm Version: 1.5.0
Link ID: 1
MAC Address: 00167874c4a0
Last Power Cycle: 1:20:19
Previous Maintenance Restart: 15:23:08
Next Maintenance Restart: 22:40:41
Service: Contact your GLOBAL VR distributor or US 1-408-597-3435
Web: www.globalvr.com
VIEW – Up
MUSIC – Down
START – Select
LOOKBACK – Cancel/Back
If you open the Operator Menu while an error is detected, the error message will be displayed over this screen in a message box. Press START to close the message box.
Go to Machine Settings: Errors for a list of detected errors.
Note that the box near the bottom of most Operator Menu screens shows you how to navigate through the menus using the game control panel.

Figure 8. Machine Info Screen

Menu Item	Description
Region	Displays the region of operation.
Cabinet Type	Displays the cabinet type, Standard/Deluxe or Motion.
Game Version	Displays the installed software game version.
Shell Version	Displays the software shell version.
OS Version	Displays the operating system version.
Dongle Flag	Indicates whether a dongle flag is installed. A dongle flag is generally used to set region-specific requirements.
Patch	If a patch is installed, the name of the patch is displayed here.
Dongle Version	Displays the localized version of the software, as read from the Game Dongle.
PLUS Version	Displays the PLUS data engine version.
IO Board	Displays the version of the GVR I/O Mini PCB.
Comm Version	Displays the communication software version. (Linked cabinets must run the same Comm version.)
Link ID	Displays the Cabinet Link ID.
MAC Address	Displays the MAC address of the system computer. This number may be useful to Tech Support for troubleshooting certain cabinet linking problems.
Last Power-Cycle	Displays the amount of time since the cabinet was last powered on.
Previous Maintenance Restart	Displays the amount of time since the cabinet did an automatic maintenance restart.
Next Maintenance Restart	Displays the amount of time until the cabinet does an automatic maintenance restart.
Service	Displays the GLOBAL VR Service phone number and website URL.

Machine Settings: Settings Menu

This menu lets you set audio volume, steering feedback and motion platform strength, enable or disable the service credits switch, and set Link IDs. It also displays available Credits.

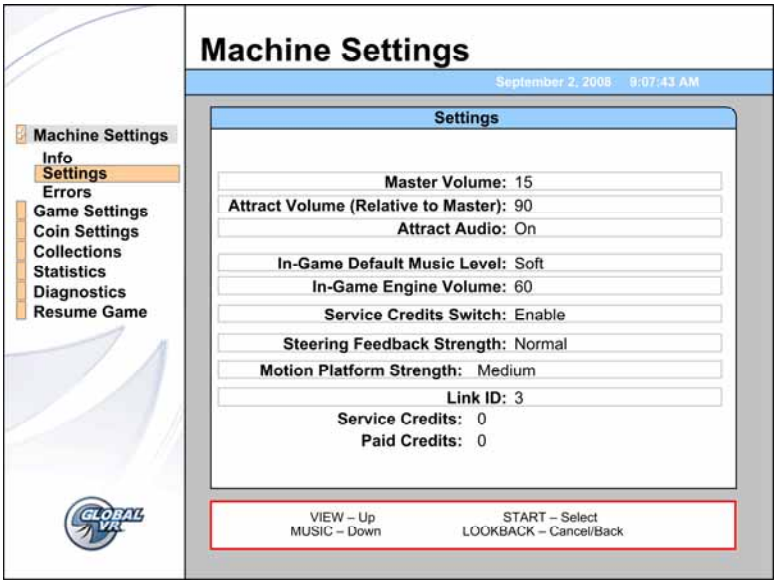

Figure 9. Machine Settings Menu

Menu Item	Description
Master Volume	Sets the overall cabinet volume from 0—100.
Attract Volume (Relative to Master)	Sets the Attract Mode volume from 0%—100% of Master Volume.
Attract Audio	Sets how often the Attract Mode sound plays. Options are *On*, *Sometimes (1/3)*, or *Off*. The *Sometimes 1/3* setting plays Attract Audio 1/3 of the time.
In-Game Default Music Level	Sets volume of music that plays during the game to *Soft*, *Loud* or *Off*.
In-Game Engine Volume	Sets volume of engine noise during the game from 0—100.
Service Credits Switch	If enabled, allows you to add Service Credits (for testing the game) using the **SERVICE** button on the Operator Button Panel. Service Credits are counted separately from Paid Credits in the Collections data.
Steering Feedback Strength	Sets how strong the Steering force feedback feels. Options are *Normal* or *Light*.
Motion Platform Strength	Sets how strong the Motion feels. Options are *Light*, *Medium*, or *Heavy*.
Link ID	Sets Cabinet Link ID, used when linking two or more cabinets. **Note:** Link IDs should be sequential from left to right for a set of cabinets. If two cabinets have duplicate link IDs they will not link, and the *Select A Link ID* menu will automatically appear.
Service Credits	Displays the number of Service Credits available on the cabinet.
Paid Credits	Displays the number of Paid Credits currently available on the cabinet.

Machine Settings: Errors Screen

The Errors screen displays a list of any errors detected by the software. See page 67 for information on specific Error Messages.

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Game Settings: Settings Menu

This menu lets you set up Play Again and Continue pricing, Free Game awards to winners, race length, and lock out Expert and Hard tracks.

Whenever you change a setting on this screen, it is a good practice to select **Reset Highscore Data** from the **Game Settings: Game Resets** menu.

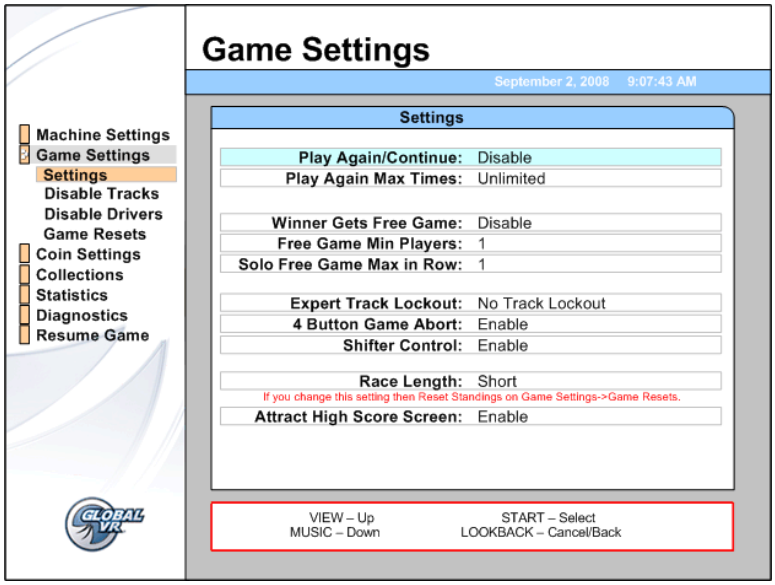

Figure 10. Game Settings Menu

Menu Item	Description
Play Again/Continue	If set to *Enable*, allows you to set different pricing to start playing or continue (play again). Set the pricing from **Coin Settings: Pricing**.
Play Again Max Times	Lets you set the maximum number of times a player can use *Continue*. Options are *1*, *2*, or *Unlimited*.
Winner Gets Free Game	If enabled, the winner of a race gets a free game. **Note:** Installing *Patch A* will remove this option.
Free Game Min Players	If Winner Gets Free Game is enabled, this sets the minimum number of players required for the free game to be awarded. Options are *1—10*.
Solo Free Game Max in Row	If Winner Gets Free Game is enabled, and Free Game Min Players is set to *1*, this sets the maximum number of times in a row the free game can be awarded. Options are *1—3 Times*.
Expert Track Lockout	If you set this to *Expert & Hard Track Lockout* or *Expert Track Lockout*, players have to press the ♪ button to select these tracks. This prevents novice players from selecting a difficult track accidentally from the Track Select screen.
4 Button Game Abort	If set to *Enable*, a solo race can be aborted by pressing all four control panel buttons at the same time.
Shifter Control	If set to *Disable*, game defaults to Automatic transmission. You can use this setting if the shifter is not working properly.
Race Length	If set to *Short*, this shortens the length of all races by reducing the number of laps in a race. The number of laps per race varies by track. Options are *Long* and *Short*. If you change this setting, you should also Reset Highscore Data from the **Game Settings: Game Resets** menu.
Attract High Score Screen	If set to *Enable*, high scores are displayed during Attract Mode.

Game Settings: Disable Tracks or Drivers Menus

These screens allow you to disable or enable any tracks or drivers. Disabled tracks and drivers do not show up in the selection screens.

If only one track is enabled, the game will skip the Select Track screen when a player starts a game; if only one driver is enabled, the game will skip the Select Driver screen.

If fewer than five tracks are enabled, the software ignores the Expert Track Lockout setting (set in the Game Settings: Settings menu).

Note: If linked cabinets do not have the same tracks available, a blue dot will appear in the lower right corner of the Attract screen to indicate a Cabinet Mismatch.

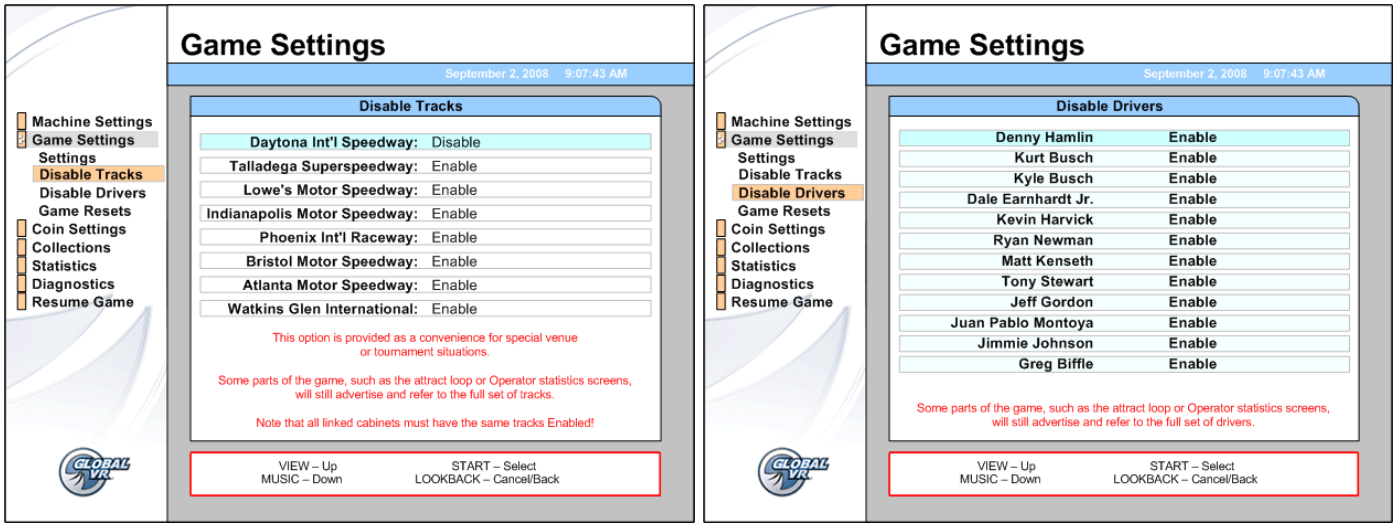

Figure 11. Disable Tracks and Disable Drivers Menus

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Game Settings: Game Resets Menu

This menu lets you restore factory default settings, or reset cabinet statistics, highscore data, or available credits. When you select any reset button except Reset Credits, a confirmation box will appear, allowing you to accept or cancel your reset selection.

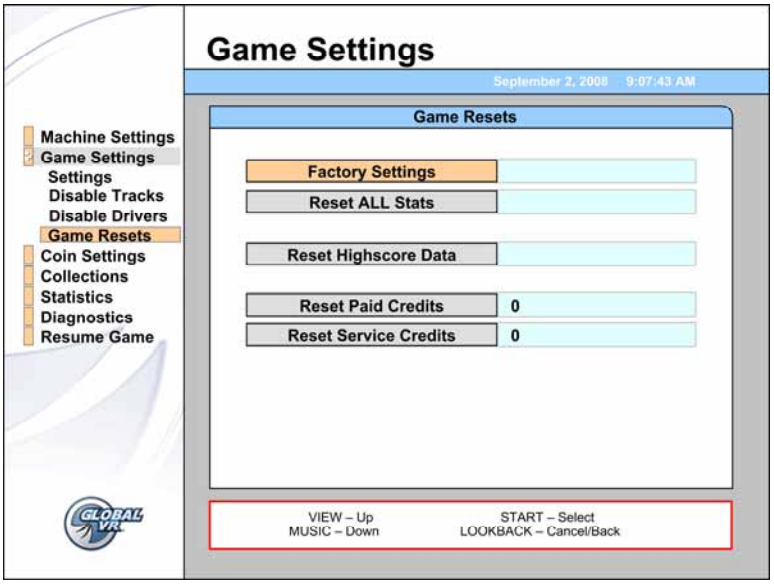

Figure 12. Game Resets Menu

Menu Item	Description
Factory Settings	Returns all the Game settings to the default factory settings. Does not affect records and statistics.
Reset ALL Stats	Resets all game play Statistics. Does not affect the Lifetime Totals.
Reset Highscore Data	Resets the High Score screens showing top racers.
Reset Paid Credits	Resets available Paid Credits to 0. Does not affect Service Credits. The number next to the button shows available credits. Any Paid Credits displayed when you reset are counted as Unspent Monies in the **Collections** screens.
Reset Service Credits	Resets available Service Credits to 0. Does not affect Paid Credits. The number next to the button shows available credits.

Coin Settings: Configuration Menu

This menu lets you turn free play on or off, set the money display prompt, and reset credits.

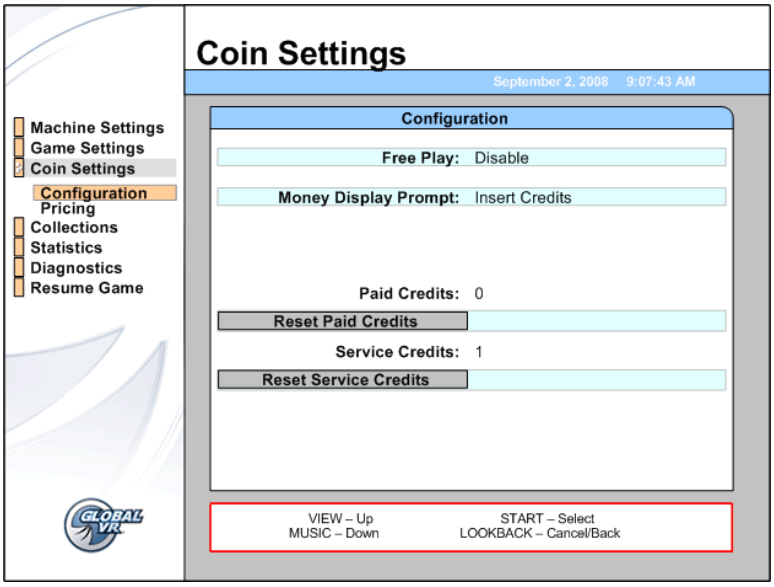

Figure 13. Coin Settings: Configuration Menu

Menu Item	Description
Free Play	Sets Free Play to *Enable* or *Disable*.
Money Display Prompt	Sets the onscreen prompt to *Insert Coins*, *Insert Credits*, *Insert Bills*, *Insert Tokens*, *Insert Money*, or *Swipe Card*.
Paid Credits	Displays the number of coin-drop credits currently available.
Reset Paid Credits	Resets available paid credits to 0. Does not affect service credits. The number next to the button shows available credits. Any Paid Credits displayed when you reset are counted as Unspent Monies in the **Collections** screens.
Service Credits	Displays the number of Service Credits currently available.
Reset Service Credits	Resets available Service Credits to 0.

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Coin Settings: Pricing Menu

This menu lets you set pricing to start or continue a game.

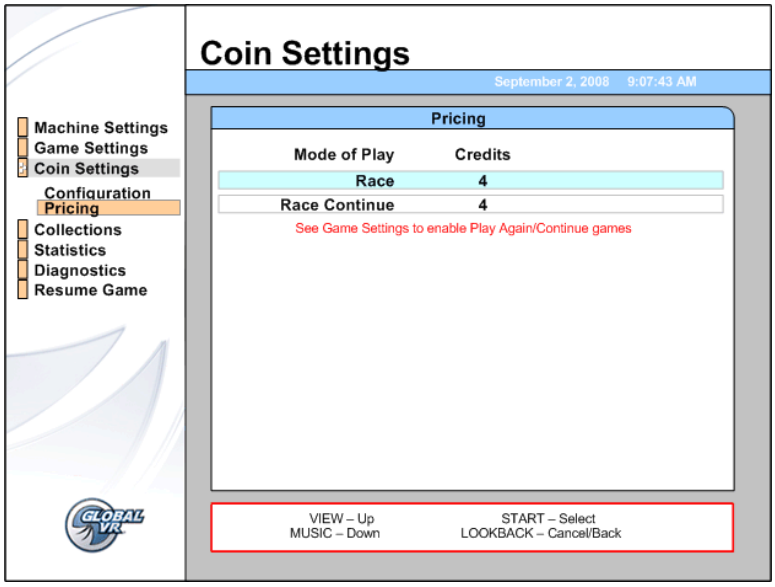

Figure 14. Coin Setting: Pricing Menu

Menu Item	Default	Description
Race	4	Lets you set the number of credits required to start a new game. Options are *1—50*.
Race Continue	3	Lets you set the number of credits required to continue a game (play again). Options are *1—50*. Play Again/Continue must be Enabled in the **Game Settings: Settings** menu to use this feature.

Collections Screens

The **Current Earnings** screen displays earnings and Service Credits entered for the current period. To end the current period, select **Reset Bookkeeping**, press **START**, and confirm your selection in the pop-up menu that appears.

When you select **Reset Bookkeeping** all amounts are reset to zero (0) out in the Current Earnings screen, and the data is moved to the **Last Collection** screen.

Lifetime Earnings and Lifetime Average Weekly Earnings are displayed on the **Statistics: Machine** screen described on page 26.

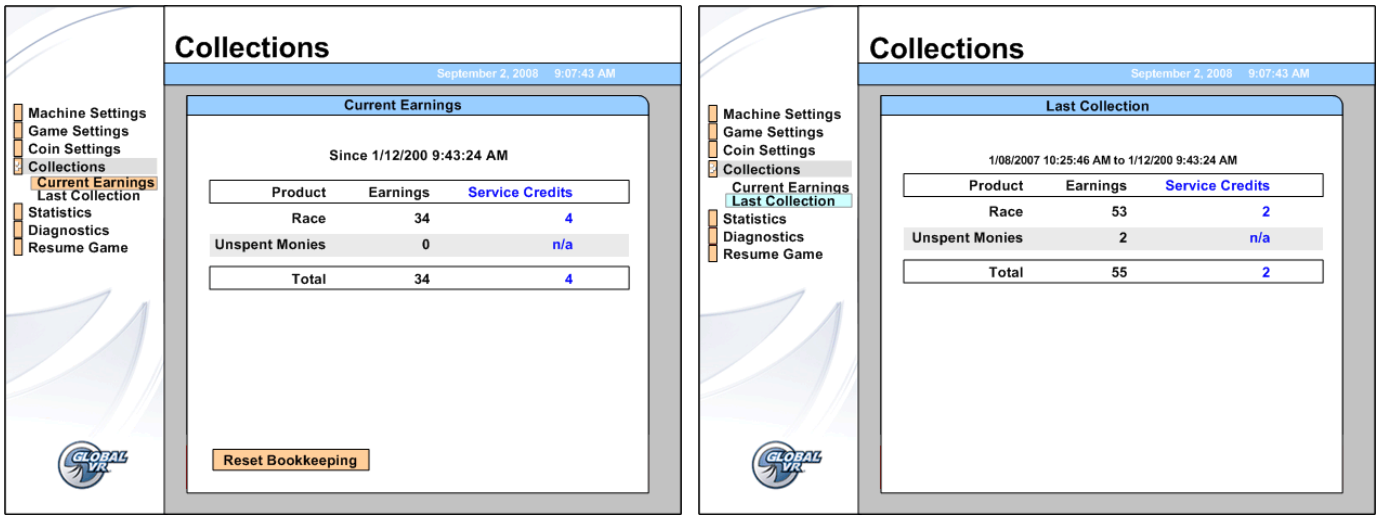

Figure 15. Collections Screens

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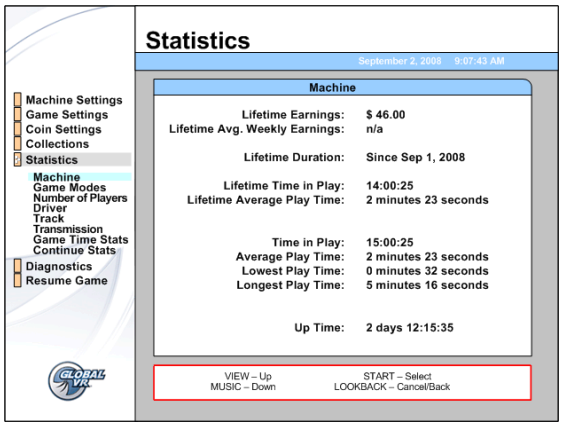
Statistics Screens

The Statistics screens allow the operator to view the game play statistics collected by the cabinet. The lifetime totals are never reset unless the operating system is restored using the System Recovery Disk. To reset the current Total for any screen, use the **Game Settings: Game Resets** menu described on page 21.



Statistics: Machine displays general statistics about the cabinet.

Lifetime earnings — total earnings for cabinet.*

Lifetime Avg. Weekly Earnings — earnings per week averaged over cabinet lifetime.*

Lifetime Duration — the date when the operating system was installed. This is updated if you run the System Recovery Disk.

Lifetime Time in Play — total time the cabinet has spent being played.

Lifetime Average Play Time — lifetime average length of a game.

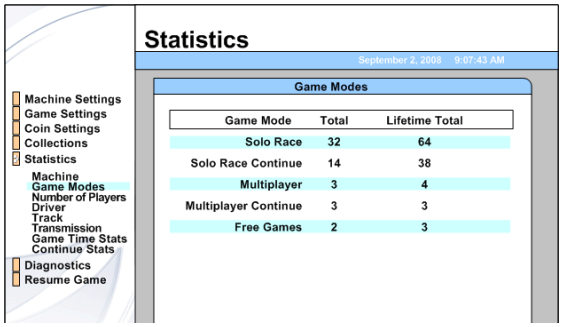
Time in Play — total time the cabinet has spent being played since the last reset.

Average Play Time — average length of a game since the last reset.

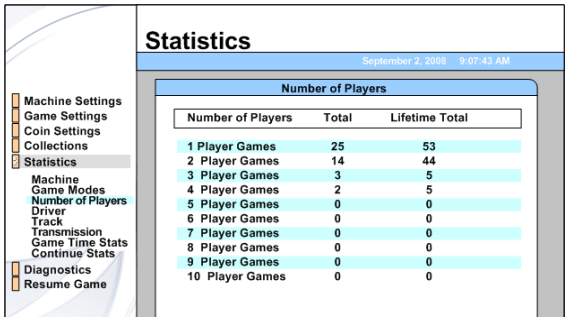
Lowest Play Time — shortest game ever played since the last reset.

Longest Play Time — longest game ever played since the last reset.

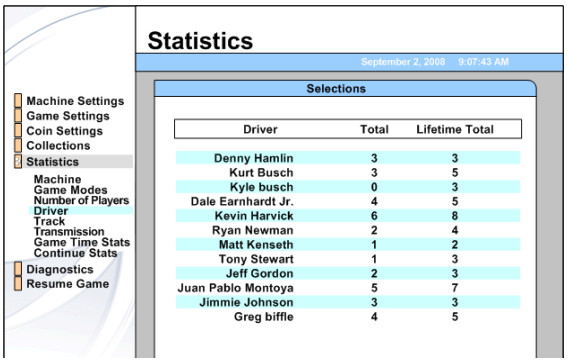
Up Time — total time the cabinet has been turned on since the last reset.



Statistics: Game Modes displays the total number of games played and continued for solo and multiplayer (linked cabinet) races. Shows Total for the current period, and Lifetime Total.

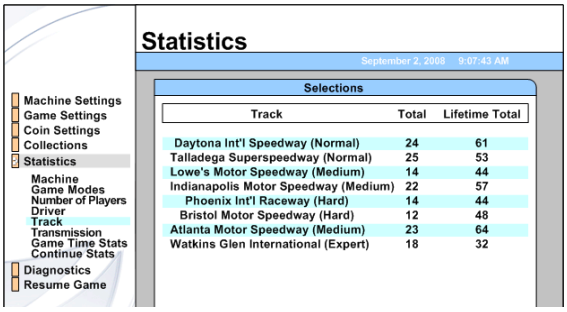


Statistics: Number of Players displays the number of games played by the number of players per game on linked cabinets. Shows Total for the current period, and Lifetime Total.



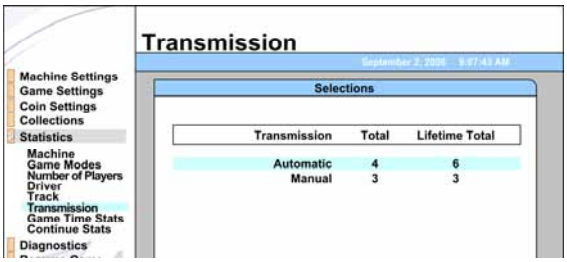
Statistics: Drivers displays the number of games played using each driver for the current period, and Lifetime Total.

Note: Not all tracks and drivers are available in the international version.

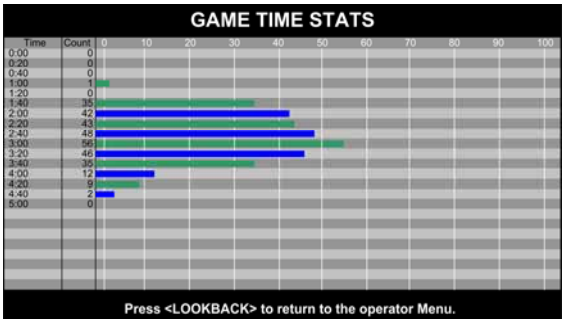


Statistics: Track displays the number of games played using each track for the current period, and Lifetime Total.

Note: Not all tracks and drivers are available in the international version.

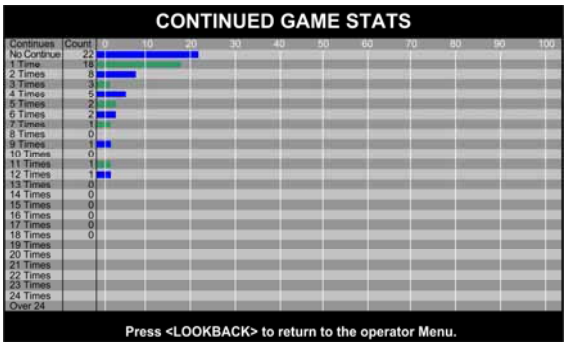


Statistics: Transmission displays the number of games played with Manual and Automatic transmissions for the current period, and Lifetime Total.



Statistics: Game Time Stats displays a graph showing how long the games last. For example, in the graph below, 85 games lasted between 3 minutes, 20 seconds, and 3 minutes 39 seconds; only one game lasted over 4 minutes 40 seconds.

Press the **LOOK BACK** button to exit this screen.



Statistics: Continued Game Stats displays a graph showing how many times players Continued after a game ended. For example, in the graph below, 12 players continued once, and 5 players continued twice.

Press the **LOOK BACK** button to exit this screen.

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Diagnostics: Play Control Test

The Diagnostics menus help you test cabinet hardware and adjust the monitor.

The Play Control Test menu lets you test driving controls, operator buttons, and coin mechs, as described below. To exit from this menu, press the **START** and **VIEW** buttons together. If you see a ⃠ symbol displayed over a component, it was not detected by the software and may be disconnected; check the wiring for this component.

- **Buttons**: When you press a control panel or Operator button, its picture should highlight on the screen. The dot next to each button will be yellow until the button is pressed, and green after it is pressed. A red dot means the button is stuck in the ON position.
- **Steering Wheel**: When you turn the steering wheel, the graphic should rotate, and the numbers next to the graphic should change to indicate the steering wheel position. Full left position should be about *-127* and full right position should be about *127*. As you turn the wheel, the changing numbers should be smooth and linear. A sudden jump in the numbers, or a different range of numbers, can indicate a bad pot or a loose steering column set screw.
- **Gas & Brake Pedal**: The numbers displayed next to the pedals show the pot value when the pedal is full up, full down, and the current value. When you step on the pedals, the number shown for the current position should change. The difference between the full up and full down values should be about 80 (±5). As you press and release the pedals, the changing numbers should be smooth and linear. A sudden jump in the numbers can indicate a bad pot or a loose set screw on the pedal assembly.
- **Calibrating the Steering and Pedals**: To calibrate the steering wheel and pedals, press the **START** and ♪ buttons together to reset the pots to 0. A ⃠ symbol will appear over the pictures of the pedals and wheel. Turn the steering wheel all the way to the left and the right to set the pot limits. Press each pedal all the way down to set the pot limits.
- **Shifter**: When you shift through the gears, the shifter in the graphic should move to the correct position.
- **Coin Mechs**: When you activate a coin mech, its name (Coin 1 or Coin 2) should turn from white to green, and the number should increment to indicate the number of coins inserted. If the name of the mech stays green, this indicates it is stuck in the ON position. (**Note:** Typically, Coin 1 is the two coin mechs, and Coin 2 is the optional bill validator.)
- **START Button and Leader Light**: The **START** button and Leader Light should blink while the **Play Control Test** menu is open. If either one fails to blink, check the bulb and wiring.

Diagnostics: Motion Test

This menu lets you test each motion drive motor individually, or test all three together.

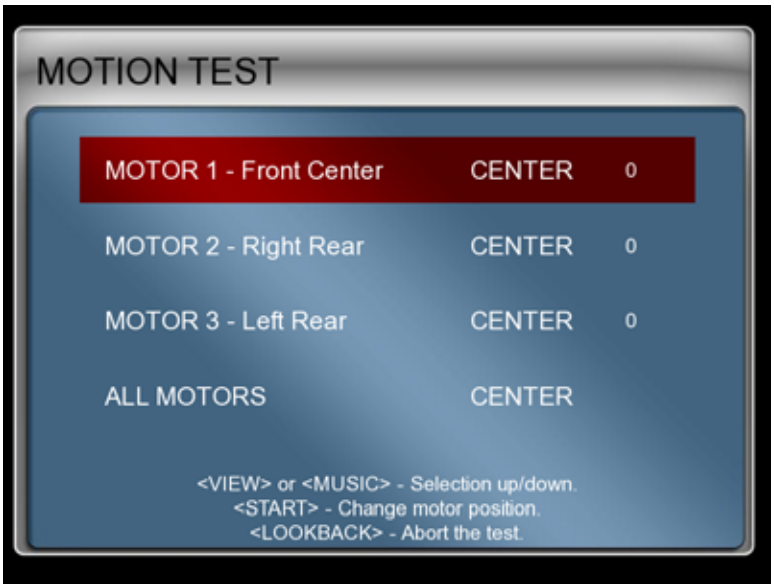

Figure 16. Motion Test Menu

If you select Motion Test from the Main Menu with the motion STOP button down, you will be prompted to pull it up to activate motion.

Select a motor and press **START** to cycle the motor to the next position. The motor will move to the position shown onscreen.

Select ALL MOTORS and press **START** to cycle all three motors together. All three motors will move to the position shown onscreen. During this test, the platform should stay level. If it does not stay level, refer to *Motor and Potentiometer Calibration* on page 36.

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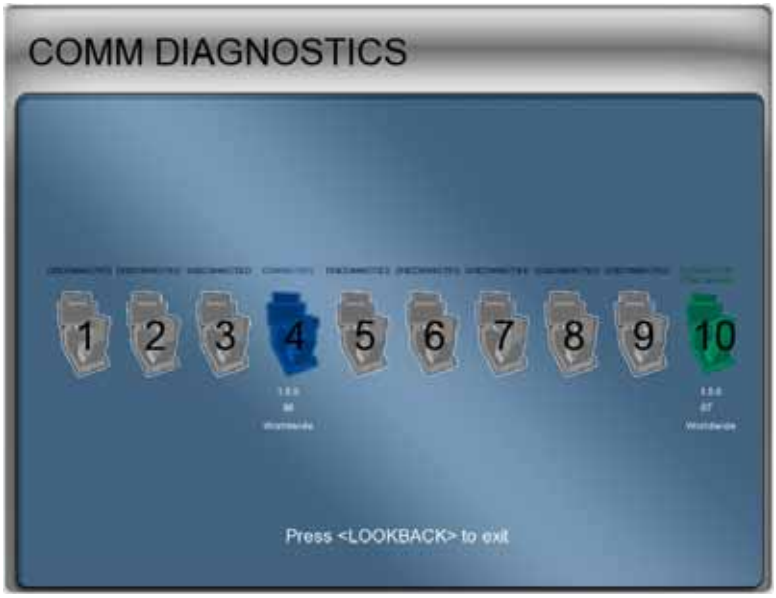
Diagnostics: Comm Test

This screen shows the status of all linked cabinets, as well as their Comm version and region.



Diagnostics: Sound Test

The Sound Test menu tests the speakers and subwoofer.

Once you enter the sound test, each speaker will play a sound while the graphic indicates the speaker that should be playing, and the onscreen text displays the name of the speaker. The subwoofer will make a low rumbling sound like an engine when it is being tested.

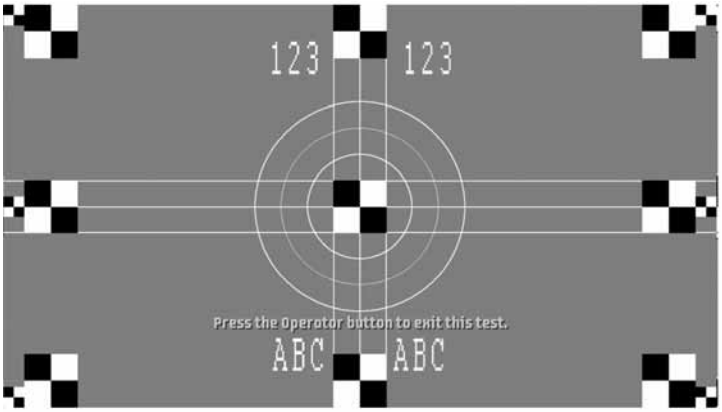
Press the ♪ button at any time to pause or resume the test.

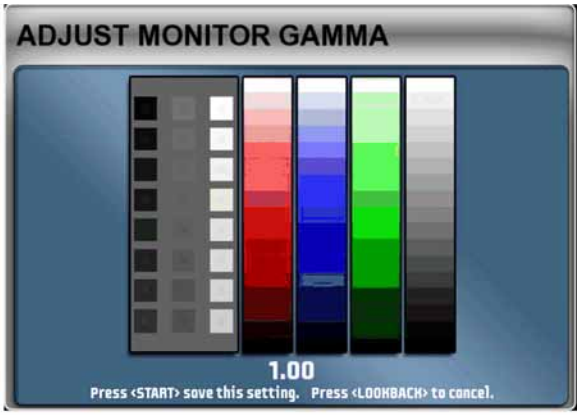
The test will repeat until you press the **LOOK BACK** button to exit.

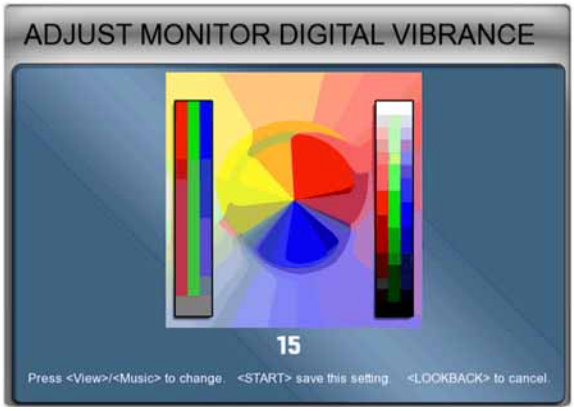
If any sound comes from the wrong speaker, or any speakers are not working, check the connections to the speakers, audio amp, and PC (see page 48). Refer to *Audio Troubleshooting* on page 62 for more information on fixing audio problems.

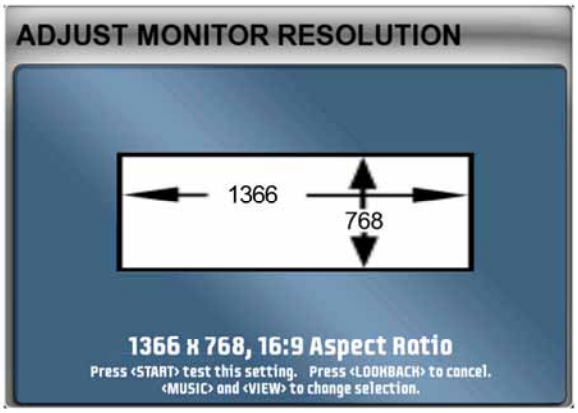
Diagnostics: Monitor Adjustment Screens

Each of the screens shown below will assist you with fine tuning the monitor.









- **Monitor Test:** When you select this menu item, it opens a series of screens designed to help you check monitor performance. Press any control panel button to cycle through a series of screens to test color and geometric alignment. Press the Operator **TEST/BACK** button to exit.
- **Monitor Gamma:** This screen lets you adjust the overall screen brightness. Press **VIEW** or ♪ to raise or lower the gamma value. To exit without making changes, press **LOOK BACK**. To exit and keep the new setting, press **START**.
- **Monitor Vibrance:** This screen lets you adjust the overall vividness, or saturation, of the colors. Press **VIEW** or ♪ to raise or lower the vibrance level. To exit without making changes, press **LOOK BACK**. To exit and keep the new setting, press **START**.
- **Monitor Resolution:** This screen lets you change the monitor resolution. This feature is provided to enhance compatibility with a variety of monitors. Normally, the software detects and sets up the optimal monitor resolution automatically.

  To change the resolution, press ♪ or **VIEW** to cycle through the available options, and then press **START** to test the selected resolution. You will be prompted to press **START** again to keep the setting. Press **LOOK BACK** to exit without making any changes.

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Chapter 5 — Software Restoration

Follow the instructions below if you need to re-install software on your cabinet. These steps apply to Software Version 1.5.

Total installation time is about 25 minutes.

Important: When you use the System Recovery Disk, you will erase all game settings, statistics, and collections data stored in the game software.

Note: All linked games must run the same Software Comm version, displayed in the Operator Menu **Machine Info** screen.

Put Monitor into PC Mode (if Needed)

If you don't see an image on your monitor once you start the software installation, you may need to put your monitor into PC mode.

Alternately, you can install the software without watching the progress on the monitor. Use the timing in this document to determine when each step is finished, and add a minute or so to each step as a precaution.

The steps to put your monitor into PC mode may vary depending on the specific monitor in use, so use the steps below as a guideline:

1. Press the **MENU** button on the TV Remote Control.
2. Use the scroll buttons (◄►▲▼) to select **Input** from the onscreen menu, and then press ► repeatedly to select **HDMI-1**. (Make a note of the current setting to restore it later.)
3. Press ▲▼ repeatedly to change the setting for **HDMI-1** to **PC**, and then press **MENU** repeatedly to exit**.**

Restore Operating System with the System Recovery Disk

Note: Be careful not to scrape the CDs as you put them in the tray. Dirt or scratches on the surface of a CD can cause the software installation to fail.

1. Insert the **System Recovery Disk** in the drive and power the **computer** OFF and then ON.

   Important: Do Not power cycle the cabinet. The monitor must remain **ON**. When the computer reboots, the CD should run automatically (wait about 30 seconds). You will see messages onscreen as files are copied to the hard drive.

2. After about 5 minutes, when prompted, remove the CD and reboot the computer. **Do not** insert the Game Install disk yet!
3. Wait for about 5—6 minutes while the software finishes the installation and reboots the computer. When the process is complete, you will briefly see a message saying "NASCAR OS Installation Complete." The screen will say to Insert Game Disk 1, but for motion cabinets **you need to run the Motion Install Disk next**.

Run the Motion Install Disk

1. With the cabinet powered ON and the computer booted, insert the CD labeled **Motion Install**. The CD will automatically run (wait about 30 seconds).
2. The GLOBAL VR Motion Driver Install screen will appear as the software copies files from the disk, and then the computer will reboot and configure the software. The total process will take about 4 minutes, and then you will see a message saying "NASCAR OS Installation is Complete." Proceed to run the Game Install disk.

Run the Game Install Disk

1. With the cabinet powered ON and the computer booted, insert the CD labeled Game Install. The CD will automatically run (wait about 30 seconds). The Install Shield Wizard will appear as the software copies files to the hard drive.
2. After about 7—8 minutes, the computer will automatically reboot. A screen will appear saying "There is a CD in the Drive." Remove the CD and press the START button to continue. Keep the three CDs in a safe place in case you need them in the future.
3. The "Calibrate the Accelerator and Brake" screen will appear. Press each pedal fully to the floor to set the pot limits.
4. Next, the steering will auto calibrate. Do not touch the wheel as it turns to set the pot limits.
5. The Cabinet Link ID resets to 1 when you install the software. If the software detects another linked cabinet with that link ID number, a screen will appear and prompt you to select a different Link ID. If necessary, you can change link IDs from the Operator Menu.
6. If you changed the monitor to PC mode, follow the same steps to restore the previous setting.
7. Once the Attract Movie begins, play a game to verify proper operation.
8. Open the Operator Menu and set the sound volume levels, pricing, and other Operator settings.

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Chapter 6 — Service and Repair

General Precautions

GLOBAL VR assumes no liability for any damage or injuries incurred while servicing the cabinet. Only qualified service personnel should perform service and installation of cabinet hardware.

Do not connect or disconnect any cables or connectors with the power on. Doing so could potentially damage the game.

To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

Please read the service instructions before working on the cabinet.

The Display Cabinet and Motion Base have components that produce HIGH VOLTAGE. Repairs must be performed by authorized personnel only.

Always turn the cabinet OFF and disconnect both AC power cords before performing any repair work. Wait 5 minutes before replacing any electrical part or parts on the Motion Base to avoid the risk of shock.

- **Do not** open the system computer without direct authorization from GLOBAL VR Technical Support. Doing so can void your warranty.
- Do not tamper with the original wiring configuration, or the positioning of ferrite shields and clamps. Alteration of game wiring may result in faulty operation.
- Always return all leg levelers to the extreme up position before moving the game.
- Always separate the Display Cabinet from the Motion Base before moving the game.

Routine Inspection Schedule

Regular diagnostics will prolong the operational life of your game and enhance gameplay.

Item	Task	When	Comments
Glass and Plastic Surfaces	Visually inspect for fingerprints, smudges, etc., and wipe clean.	Daily	**CAUTION!** Use only mild detergent solutions approved for use on Plexiglas®. Do not use chemical solvents or cleaners containing abrasives.
Bellows around motion base	Visually inspect for tears, rips, and loose or missing retaining screws. Replace if damaged.	Daily	The bellows is important for player safety and prevents debris from getting inside the motion system mechanisms.
Resting motion inspection	With the Red Motion STOP Button up, visually inspect the game to make sure it is not moving in Attract Mode.	Daily	The Motion Base should **not** move during Attract Mode; this can severely decrease the life expectancy of your motors. This is usually caused by a bad pot. Contact Technical Support immediately for a replacement.

Item	Task	When	Comments
Bellows Retaining Screws	Visually inspect for loose or missing retaining screws and replace or tighten.	Weekly	Missing screws encourage vandalism and theft. All screws must be in place to ensure player safety.
Motion function check (bellows up)	Make sure the game is level during Attract Mode. Go to **Diagnostics: Motion Test** in the Operator Menu and cycle ALL MOTORS through all positions, making sure platform stays level.	Weekly	If the platform is not level during Attract Mode and ALL MOTORS test, one or more motors is probably out of calibration. Refer to *Motor and Potentiometer Calibration* on page 36.
Motion Diagnostics (Bellows down)	Visually inspect motion drive components for alignment and wear. Make sure motion appears normal.	Every Two Months	Refer to *Motor and Potentiometer Calibration* on page 36 to check motor calibration.
Push Rod Assembly check (bellows down)	1. Check the entire Push Rod Assembly and Motion Plate for loose hardware. 2. Check Rod End connections for signs of wear. 3. If any of these items are worn excessively, stop using the game immediately and contact Technical Support.	Monthly	Continuing to run the game with damaged or worn components may cause severe damage to the motion base, and may void the warranty. See Figure 36 on page 77 for motor assembly components.
Steering controls, pedals, and dash buttons	1. Inspect for loose or damaged parts. Replace as needed. 2. Select **Controls** in Operator Menu; test buttons, pedals & steering. Calibrate steering & pedals as needed.	Weekly	Calibration of the components is critical. If controls are out of calibration, the game will not function properly.
Connecting Brackets	Make sure all bolts are tight between the display cabinet, interconnect bridge, and motion base.	Weekly	The powerful jolts may cause the unit to “travel” after extensive use. Make sure it stays in its location.
Cooling Fans	Verify that all fans in the Display Cabinet and Motion Base are working (see Figure 33 on page 74 for fan locations). Clean all air vents. Also make sure the fans in the System Computer are working. If any of the fans stop working, check the power connection. Replace a non-working fan immediately.	Monthly	**Important:** The fans in the Motion Base operate on 220 VAC. It is essential to maintain proper ventilation to the display cabinet, motion base, and computer. Failure to do so may decrease the performance and/or the life span of your game.
Leg Levelers	Make sure the game is sitting flat on all of the leg levelers, and all of the casters are locked in the full up position.	Monthly	

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Opening the Back of the Display Cabinet

There are three interlocked panels on the back of the display cabinet. To remove the panels, first remove the screws securing the top panel and remove that panel. Next remove the middle panel, and finally remove the lower panel.

Note: Most PCBs and electronic components can be reached through the front access panel.

Servicing the Motion Base

Opening the Bellows (Skirt)

1. Do the following to open the Bellows:
   a. Remove the Retaining Screws that secure the top of the Bellows.
   b. Move the Bellows down.
2. Do the following to close the Bellows:
   a. Lift the Bellows into place.
   b. Line up the holes in the Bellows and secure with the Retaining Screws.

Replacing the Bellows (Skirt)

Do the following if you need to replace the bellows assembly:

1. Remove the Retaining Screws at the top and bottom of the bellows.
2. Remove the formed plastic quarter panels and wheels by removing the bolts that secure the pieces in place.
3. Remove the bellows by lifting it over the motion base.
4. Reverse these steps to install the new bellows.

Motor and Potentiometer Calibration

WARNING:

Secure all loose clothing, jewelry, and hair before working around the motors. Lose items could get caught in the moving parts of the motors.

Perform the following steps **only** if the motion platform is not level during Attract Mode, or after replacing a motor or pot. Refer to Figure 17 on page 37, and Figure 36 on page 77 to identify motor components.

1. Remove the retaining screws at the top of the Bellows, and lower the Bellows.
2. Open the Operator Menu and select **Diagnostics: Motion Test** (see page 29).
3. Select **ALL MOTORS** from the Motion Test menu and press the **START** button to move the platform to the **DOWN** position.
4. Look at each of the motors and verify that the push rod mechanisms are at the lowest point in their vertical travel.

5. Press the **START** button to move the platform to the **UP** position. Look at each of the motors and verify that the push rod mechanisms are at the highest point in their vertical travel.
6. If any motor is not stopping at the full up and full down positions, refer to Figure 17 and perform the following steps to calibrate the motor potentiometer:

   Note: Motors are numbered starting with the front-most motor (**1**) and proceeding in a clockwise sequence, as shown in Figure 34 on page 75.

   a. Select **ALL MOTORS** from the Motion Test menu and press the **START** button to move the platform to the **DOWN** position.

   b. Loosen (do not remove) the Pot Alignment Set Screw that attaches the Pot L-Bracket to the Pot Alignment Disk.

   c. Rotate the Pot Alignment Disk slightly clockwise or counter-clockwise to adjust the angle of the Cams. Make sure the surfaces of the Cams and Push Rod are parallel and the Push Rod is at its lowest vertical position.

   d. Re-tighten the Pot Alignment Set Screw.

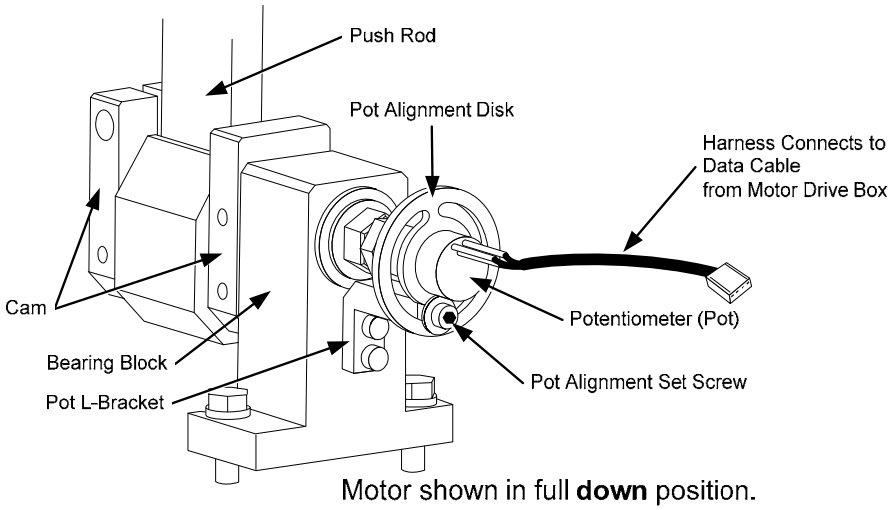

Figure 17. Motor Pot Detail

7. Repeat the procedure as necessary until all three pots are calibrated.
8. Test the calibration by cycling ALL MOTORS through the UP, CENTER, and DOWN positions. The entire platform should remain level, with no wobble, as it moves up and down.
9. Exit from the Operator Menu and verify that the motion platform is level both **front-to-back** and **left-to-right** when the game is running in Attract Mode.
10. Lift the Bellows into place and secure them with the Retaining Screws.

Potentiometer Assembly Replacement

1. Refer to Figure 17 on page 37, and Figure 36 on page 77 to identify motor components, and perform the following steps:
2. Turn off power and disconnect both Cabinet AC Power Cords.
3. Remove the retaining screws at the top of the Bellows, and lower the Bellows.
4. Disconnect the potentiometer 4-pin Molex® connector from the motor drive box cable.

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5. Remove the two bolts that secure the Pot L-Bracket to the Bearing Block.
6. The coupler on the shaft has four set screws. Loosen the two set screws that are closest to the potentiometer.
7. Reverse these steps to install the new Potentiometer Assembly. Make sure there is some play in the Pot L-Bracket.
8. Calibrate Motor and Potentiometer Assembly as described in the previous section.

Push Rod Assembly Replacement

Refer to Figure 17 on page 37 and Figure 36 on page 77, and perform the following steps:

1. Turn off power and disconnect both cabinet AC power cords.
2. Remove the retaining screws at the top of the Bellows, and lower the Bellows.
3. Remove the nuts and washers from the four studs that secure the platform to the Motion Plate. Carefully disconnect the harnesses that run between the base and platform and remove the platform with the seat assembly attached.
4. Remove the two (2) bolts that secure the Bearing Block to the tray (the bottom of the motion platform).
5. Loosen the Bell Crank bolt on the motor shaft (not shown in Figure 36), and use a mallet or puller to disengage the Bell Crank. **Be careful not to lose the Motor Key** (a long rectangular piece of metal on the motor shaft).
6. Remove the two M8x125 bolts with lock washers that secure the Push Rod assembly to the Motion Plate. The Push Rod Assembly may now be removed.
7. Re-install the top portion of the Push Rod to the Motion Plate. Install the lock washer and nut. Use a small amount of Locktite® Red and tighten to 16 ft/lbs.
8. Using a torque wrench, tighten the Bell Crank bolt to 75 ft/lbs, and visually inspect the crease on the Bell Crank.
9. Fasten the bearing block to the tray. Use a small amount of Locktite Red and tighten to 16 ft/lbs.
10. Calibrate the Motor and Potentiometer Assembly as described on page 36.

Motor Drive Box Replacement

Refer to Figure 35 on page 76 for a drawing of the Motor Drive Box and connectors.

PREVENT INJURY OR DEATH: Never open any of the control boxes or power boxes. These boxes are powered by 220 VAC. Attempts to improperly service may cause SERIOUS INJURY OR DEATH.

Disconnect the main power plug and wait for AT LEAST 60 SECONDS for power to dissipate prior to handling.

1. Turn off power and disconnect both cabinet AC power cords.
2. Remove the retaining screws at the top of the Bellows, and lower the Bellows.
3. To be sure that no power is left in Motor Drive Box, you must **wait 1 minute** after disconnecting the power cord before performing the next step.

4. Disconnect the four cables from the Motor Drive Box. (There is the main power cable, a braided metal power cable that goes to the motor, and two data cables.)

   Important: Do not pull on the cables to disconnect them; grip the connectors only.

5. The Motor Drive Box is held in place by a metal clamp. Unscrew the bolts that secure the clamp and lift the box out.

6. Reverse these steps to install the new Motor Drive Box.

   Important: Make sure all cables are firmly connected and straight. Improperly connected cables can cause problems such as the motor spinning constantly.

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Force-Feedback Steering System Service

The major components of the steering system are listed below. Figure 18 shows the harnessing of the force-feedback steering system.

- Steering Wheel
- Force-Feedback PCB (part # COEM-GCE-H2P5A)
- +24 VDC Power Supply
- Steering Motor
- 5 KΩ Steering Pot (Potentiometer)

Note: Some previous driving cabinets use a dual-board force-feedback system consisting of a Force-Feedback PCB (blue board, part # COEM-6040-245), Force-Feedback Motor Controller PCB (green board, part # COEM-6052), and a ribbon cable connecting the two boards. The single and dual-board systems are completely interchangeable for use as replacement parts.

The Force-Feedback PCB manages communications between the 5 KΩ steering pot and the computer (via a USB connection). The steering pot sends the computer the steering wheel position as the player drives, and the computer sends back instructions for controlling the steering motor by regulating the power. The force-feedback steering motor is powered by the +24 VDC power supply via the Force-Feedback PCB.

A faulty cable or steering-system component can cause steering problems. Refer to the *Troubleshooting* chapter for help with diagnosing steering problems.

CAUTION: Do not connect the power supply directly to the steering motor. Doing this will damage the motor and the power supply.

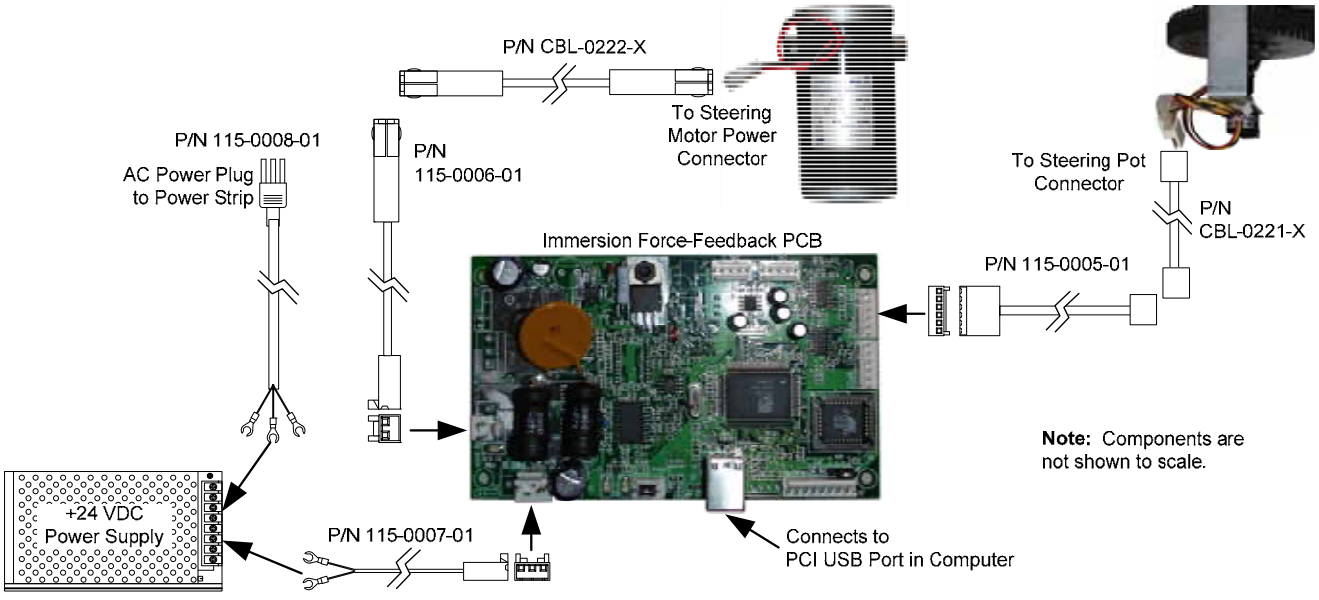

Figure 18. Force-Feedback Steering System Harnessing Diagram

5 KΩ Steering Pot (Potentiometer) Replacement

1. To test a pot, select **Play Control Test** in the Operator Menu (see page 28). While turning the wheel, the change in the numbers displayed onscreen should be smooth and linear, with no jumps.
2. You can also power off the game and test resistance at the pot. While turning the wheel, you should see a steady linear increase or decrease in resistance, with no jumps.
3. To replace a pot, refer to Figure 19 and perform the following steps:
   a. Remove the three (3) top screws from the driving control panel and open the control panel. It will open downward on a hinge. Be careful not to pull the wires.
   b. Using a 7/64 Allan wrench, loosen the set screw from the steering column and remove the bracket with the 5 KΩ steering pot attached.
   c. Using a 1/2-inch wrench, remove the nut and lock washer from the bracket and remove the pot.
   d. Reverse these steps to install the new pot. Install the pot with the plastic pin through the small hole in the bracket, as shown in Figure 19 below. Make sure the installed bracket has some play.
   e. Calibrate the steering from the Play Control Test in the Operator Menu after replacing the pot.

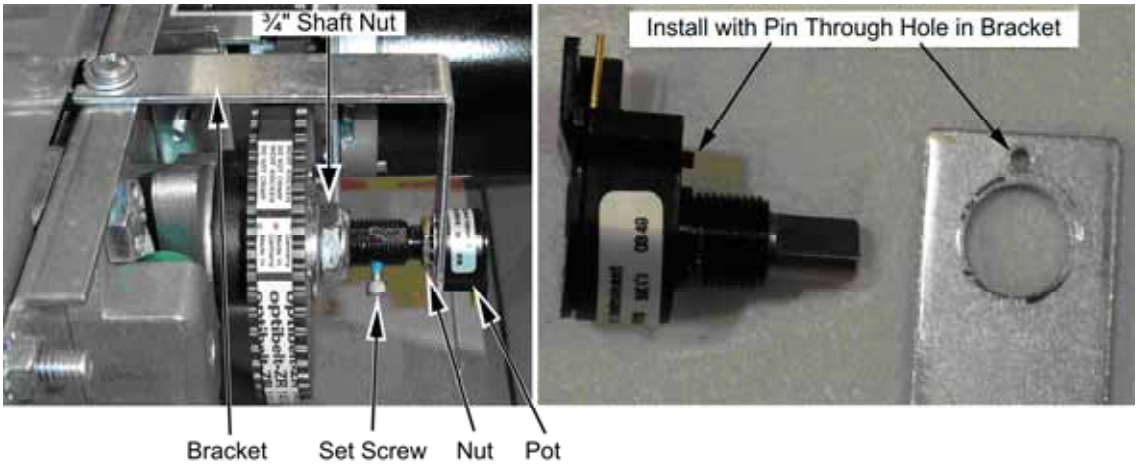

Figure 19. Replacing the 5 KΩ Steering Pot

Force-Feedback Belt or Steering Motor Replacement

It is a good practice to inspect the steering belt and gears periodically. Always replace a belt that looks stretched, cracked, or worn. Replace a gear that looks worn.

Refer to Figure 19 above, and Figure 20, and perform the following steps to remove the force-feedback belt for repair. Always replace the belt if it looks cracked or worn.

1. Using a 7/64 Allan wrench, loosen the set screw from the steering column and remove the bracket with the pot attached (see Figure 19).
2. Loosen the four (4) 3/8" motor mount Kep nuts that secure the steering motor to the frame (see Figure 20).

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3. Using a 10mm socket wrench, loosen the belt tension adjustment bolt several turns until you can slip the belt off of the motor and steering gears (see Figure 20).
4. Inspect the motor gear (the small gear) for wear. A worn gear can quickly wear out a belt. Make sure the two gears are aligned to prevent stress on the belt. Use Loctite on the set screws to ensure they are secure.
5. To replace the motor, remove the four (4) 3/8" Kep nuts that you loosened in step 2, and remove the motor.
6. Reverse these steps to re-install the motor and belt. Adjust the belt tension as described below.

Force-Feedback Belt Tension Adjustment

The belt tension should be adjusted on a new cabinet after one month of initial operation. After that it should be adjusted every 60—90 days for optimal performance. Inspect the gears for wear at the same time. A worn motor gear can wear out a belt.

1. Tighten the tension adjustment bolt on the motor assembly, shown in Figure 20, until the belt is fully stretched, and then loosen the bolt by ½ turn.
2. Calibrate the steering from the Operator Menu after servicing the belt or motor.

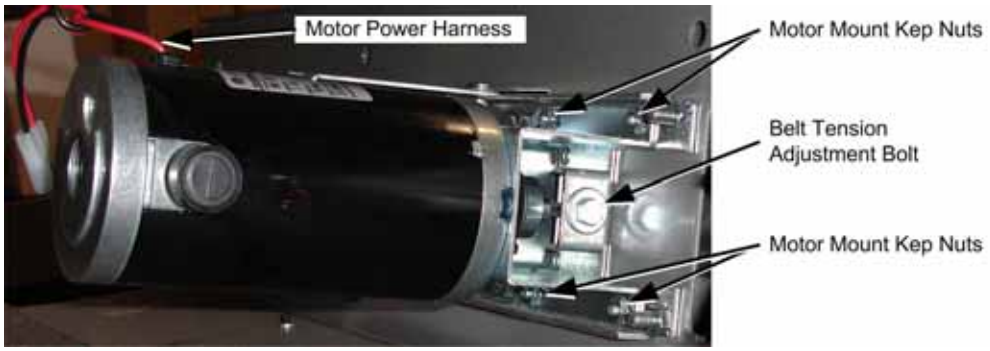

Figure 20. Servicing the Steering Motor

Force-Feedback PCB Replacement

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

If the steering pulls to one side, this could indicate a bad force-feedback PCB. Use the following steps to replace the PCB.

Important: Part # COEM-GCE-H2P5A is completely interchangeable with the dual PCB system consisting of COEM-6052, COEM-6040-245, and the ribbon cable that connects these two PCBs. The dual-PCB system was used on some non-motion cabinets.

1. Turn off the game and disconnect both cabinet AC power cords.
2. Open the Front Access Panel.
3. Disconnect all cables from the PCB.
4. Remove the four screws that secure the PCB to the cabinet.
5. Reverse these steps to install the new PCB.
6. Calibrate the steering from the Operator Menu after replacing the PCB.

Driving Control Panel Button Service

The buttons on the cabinets are illuminated with 5-volt C555 bulbs. Refer to Figure 21 and perform the following steps to replace the buttons, bulbs, and micro switches:

1. Turn off the game and disconnect both cabinet AC power cords.
2. Remove the three (3) top screws from the driving control panel and open the control panel. It will open downward on a hinge. Be careful not to pull the wires.
3. To remove a micro switch, gently rock it to the side and remove it from the housing. Remove the wires and install them on the same connectors on the new micro switch.
4. To replace a bulb, gently rock the white plastic bulb housing from side to side to pop it out of the button housing.
5. To remove a bulb, pull it straight out of the bulb housing.

CAUTION: Do not connect the 5-volt lamp power wire to the micro switch. This can damage the GVRI/O PCB.

6. When connecting the wiring to the micro switch and bulb, refer to the labels on the wires to make sure the connections are correct.

Figure 21. Replacing Button Lamps

Pedal Assembly Service

The gas and brake pedal assemblies are the same except for the pedal plate installed.

Pedal Pot Replacement

1. Remove the four (4) screws that secure the pedal assembly to the motion base. Carefully lift it enough to disconnect the harness.
2. Loosen the set screw that secures the gear to the pot shaft and remove the gear.
3. Remove the 12mm nut that holds the pot in place and remove the pot.
4. Reverse these steps to install the new pot.
5. Calibrate the pedal from **Diagnostics: Play Control Test** in the Operator Menu.

Pedal Spring Replacement

1. Remove the four (4) screws that secure the pedal assembly to the motion base. Carefully lift it enough to disconnect the harness.

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2. Loosen the set screw that secures the gear to the pot shaft and remove the gear. You may also wish to remove the 12mm nut that holds the pot in place and remove the pot to protect it from possible damage while you work on the assembly.
3. If you are working on the gas pedal, remove the pedal plate by removing the four (4) 3mm hex socket screws that secure it in place. This makes it much easer to access the top plate screws.
4. Loosen the three (3) T-25 Torx screws on the side of the assembly that does not have the pot.
5. Remove the four (4) 7mm nuts and 2.5mm hex socket screws that secure the top plate in place.
6. Remove the three (3) screws that you loosened earlier and remove the side plate.
7. Place the new spring as shown in Figure 22, with the shorter end in the hole in the pedal shaft.
8. Refer to Figure 22, and place the side plate so the longer end of the spring extends through the small hole. Insert the middle screw with flat washer and tighten until it just starts to get snug.
9. Rotate the side plate into position, putting tension on the spring, and install the remaining two screws with flat washers. Leave the screws slightly loose for now. You may need to place the assembly in a vice or have a second person help with this step.
10. Re-install the top plate and secure it with the four (4) nuts and bolts. Make sure the assembly is squared properly and then tighten the side plate screws.
11. Replace the pedal and pot, if removed, and the gear, and re-install the pedal in the motion base by reversing the removal steps.
12. After service, calibrate the pedal from **Diagnostics: Play Control Test** in the Operator Menu.

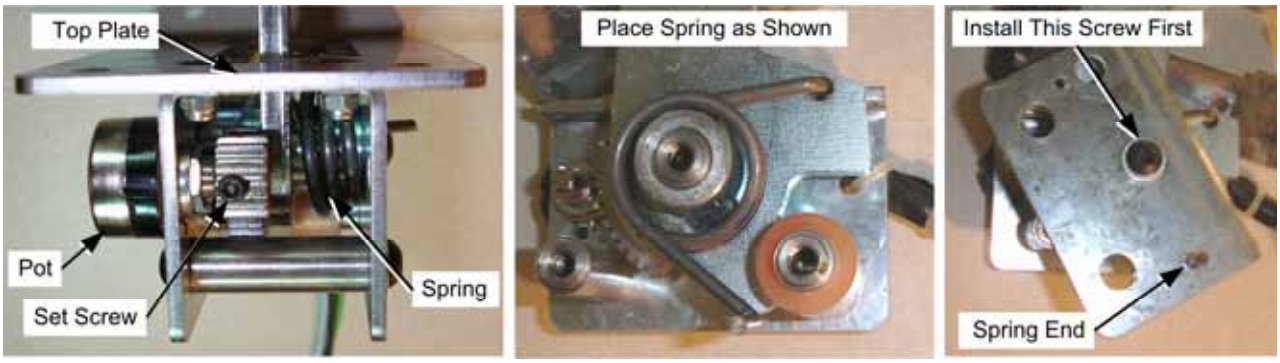

Figure 22. Pedal Assembly Service

Four-Speed Shifter Service

Perform the following steps to remove the shifter for replacement or repair.

1. Remove the four (4) T-10H Security Torx screws from the top of the shifter assembly and carefully pull the shifter up out of the housing.
2. Disconnect the Molex connector from the shifter harness.
3. Reverse these steps to install the new shifter.
4. After service, test the shifter from **Diagnostics: Play Control Test** in the Operator Menu.

Important: Make sure no wires are pinched in the shifter housing. Pinched wires can cause incorrect gear readings.

Shifter Micro Switch Replacement

The shifter uses one mini micro switch (part #: 95-4118-00) for each gear. If the shifter is not working in one gear, check the micro switch for that gear.

1. Remove the shifter as described in the previous section.
2. Put the shifter in the gear that is not working and look at the bottom of the assembly to see which micro switch is being actuated for that gear.
3. Check for any wires that may be disconnected from the micro switch in case this is the problem.
4. To replace the micro switch, remove the four (4) screws that secure the bottom plate to the shifter and remove the plate. Be careful not to lose the spacers between the plate and the shifter.
5. Disconnect the wires from the old micro switch and install them to the same terminals on the new micro switch.
6. Remove the two screws that secure the old micro switch to the assembly and install the new micro switch.
7. Reverse these steps to assemble and install the shifter.
8. After service, test the shifter from **Diagnostics: Play Control Test** in the Operator Menu.

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GVRI/O Mini PCB Service

The GVRI/O MINI PCB relays signals between the system computer and all controls except for the steering. Each connector on the GVRI/O MINI PCB is keyed to fit only to the correct harness connector. Refer to the picture below to locate the connectors on the PCB. See Figure 37 on page 78 for detailed wiring information.

The GVRI/O MINI PCB should always be connected to a PCI USB port, **not** a motherboard USB port, to minimize the possibility of static shock.

Jumpers must be placed in positions **1** and **3** of **J5 – Mode Select** (Car Controller Mode).

CAUTION: Disconnect the cabinet from AC power before changing any connections to the GVRI/O MINI PCB.

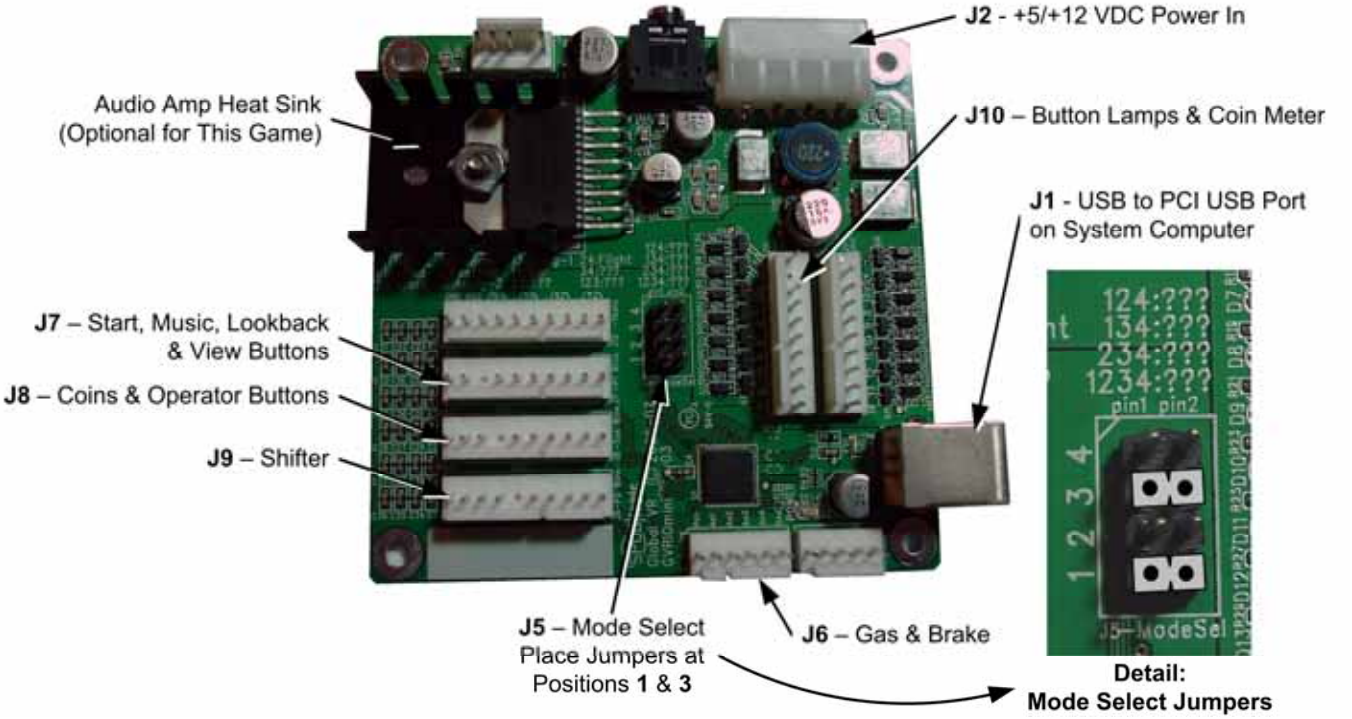
J2 - +5/+12 VDC Power In
Audio Amp Heat Sink
(Optional for This Game)
J10 – Button Lamps & Coin Meter
J1 - USB to PCI USB Port
on System Computer
J7 – Start, Music, Lookback
& View Buttons
J8 – Coins & Operator Buttons
J9 – Shifter
J5 – Mode Select
Place Jumpers at
Positions 1 & 3
J6 – Gas & Brake
Detail:
Mode Select Jumpers

Figure 23. GVRI/O Mini PCB

Perform the following steps to replace the GVRI/O Mini PCB:

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. Disconnect the cabinet AC Power Cord.
2. Remove the front access panel and locate the PCB on the lower shelf.
3. Make sure that all wire harnesses are labeled for ease of reconnection, and then disconnect them from the PCB.
4. Remove the four screws that secure the PCB to the mounting feet.
5. Check the new PCB and make sure jumpers are installed in positions **1** and **3** of **J5 – Mode Select**. The controls will not work properly if the jumpers are not installed.
6. Reverse these steps to install the new PCB.

Seat Slide Assembly Replacement

To replace the slide assembly, refer to Figure 24 and perform the following steps:

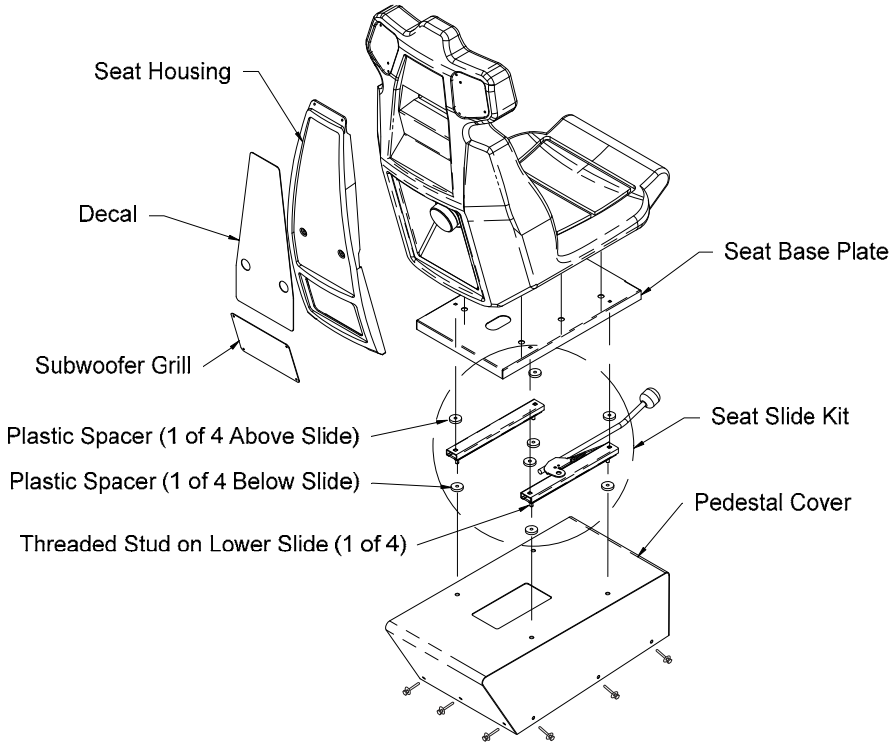

Figure 24. Seat Slide Assembly Replacement

1. Remove the nine (9) Torx bolts from around the bottom of the pedestal cover.
2. Carefully lift the seat assembly and place it on its side. Be careful not to pull the speaker wires that run from the pedestal into the seat. You may need to reach inside the pedestal and snip wire ties to create slack in the wires.
3. Remove the four (4) nuts and flat washers from the bottom of the pedestal cover, and remove the pedestal cover and the four (4) plastic spacers from the seat assembly. Note the placement of each component for reassembly.
4. Remove the four (4) nuts and flat washers that secure the slide assembly to the seat base plate. Move the lower slides to each side to access all four nuts.

   Note: When reassembling, be careful to install the four (4) plastic spacers above and below the slide assembly. A missing spacer will cause the seat to wobble and may cause damage. If necessary, flat washers stacked to equal the thickness of the spacer can be used to replace a lost spacer.
5. Reverse these steps to re-assemble the seat. Use the following specs when tightening the nuts to prevent the seat from gradually becoming loose due to motion during gameplay:
   - Seat Base Plate to Slide Assembly: Either replace the ¼-20 flange nuts with ¼ Nylock nuts, **or** apply Loctite 242® Threadlocker Blue (or a comparable product) to the threads. Tighten the nuts to 4–6 ft lbs (48–72 in lbs).

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- Pedestal Cover to Slide Assembly: Either replace the 5/16-18 flange nuts with 5/16 Nylock nuts, **or** apply Loctite 242 Threadlocker Blue (or a comparable product) to the threads. Tighten the nuts to 9–12 ft lbs (108–144 in lbs).

Important: Loctite can damage plastics. Be careful not to get the Loctite on the plastic seat, and **do not** use Loctite with Nylock nuts.

Audio Amp and Speakers Service

The Audio Amp supports 6-channel 5.1 Surround Sound. The Audio Amp is powered by the +5/+12 volt DC power supply through a standard PC power connector.

The volume level for each channel on the Audio Amp can be manually adjusted using a small screwdriver to turn the pots, shown in Figure 25. For the subwoofer channel, turn the pot clockwise all the way for maximum volume. For the other channels, turn the pot counterclockwise to turn the volume levels all the way down, and then turn the pot 1/5 of a turn clockwise to bring the volume levels up. Fine-tune the sound levels for your location from this point.

Use the **Diagnostics: Sound Test** screen in the Operator Menu to test the speakers.

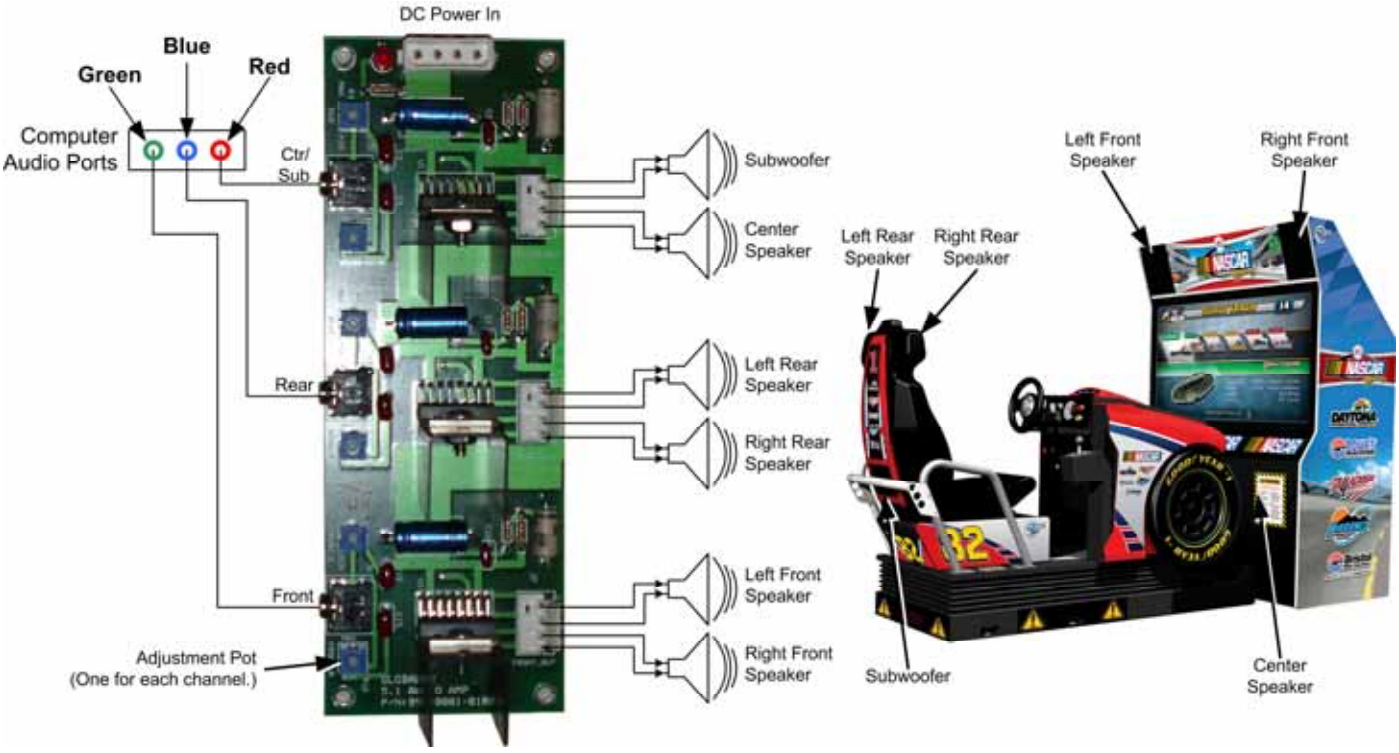

Figure 25. Audio Amp Connections, Volume Adjustment, and Speaker Locations

Three 3.5 mm stereo audio cables connect the computer audio ports to the audio amp. Each audio port on the computer is color coded to help identify the channel.

- The **green** audio port is for front speakers, left and right.
- The **blue** audio port is for rear speakers, left and right.
- The **pink** audio port is for center channel and bass speaker (subwoofer).

Each speaker is connected to the corresponding speaker output on the audio amp. See Figure 25 for the location of each speaker.

Audio Amp PCB Replacement

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. Remove the front access panel from the display cabinet.
2. Disconnect the power harness, speaker wires, and 3.5mm audio cables from the audio amp PCB. Make sure all connectors are labeled to make it easy to reconnect them properly.
3. Use a small Phillips screwdriver to remove the four (4) screws holding the PCB to the mounting feet.

   Note: Always keep the audio amp PCB inside an ESD anti-static bag when not installed in the cabinet to prevent electrostatic damage.
4. Reverse the removal steps to install the new audio amp PCB.

Front (Marquee) Speaker Replacement

The front speakers are located on either side of the marquee.

1. Remove the five (5) screws that secure the retaining bracket above the marquee. Remove the bracket, marquee clear plastic, and speaker grills.
2. Remove the four (4) screws that secure the speaker to the cabinet.
3. Remove the wires from the speaker and install them to the same connectors on the new speaker.
4. Reverse the removal steps to install the new speaker.

Center Speaker Replacement

The center speaker is located on the right side of the Display Cabinet below the monitor.

1. Open the back of the Display Cabinet (see page 36).
2. Remove the four (4) screws that secure the speaker to the cabinet.
3. Remove the wires from the speaker and install them to the same connectors on the new speaker.
4. Reverse the removal steps to install the new speaker.

Rear (Seat) Speaker or Subwoofer Replacement

The rear speakers are located behind the two small grills at the top rear of the seat. The subwoofer is located behind the molded red plastic housing on the back of the seat.

1. **To replace the Subwoofer**, remove the six (6) Torx screws that secure the molded red plastic housing on the back of the seat, and remove the housing. Skip to step 3.
2. **To replace the left or right rear speaker**, remove the four (4) 1/4-20H Torx security screws that secure the speaker grill to the back of the seat.
3. Remove the four (4) screws that secure the speaker or subwoofer to the seat.
4. Remove the wires from the speaker or subwoofer and install them to the same terminals on the new speaker or subwoofer.
5. Reverse the removal steps to install the new speaker or subwoofer.

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Computer Replacement

CAUTION: The computer is serviced as one unit. YOU WILL VOID YOUR WARRANTY if you open the computer without direct authorization from the GLOBAL VR Technical Support staff.

Perform the following steps to remove the computer from the cabinet:

1. Turn off power and disconnect both cabinet AC power cords.
2. Open the back of the Display Cabinet (see page 36).
3. Open the Display Cabinet front access panel and disconnect all of the cables from the computer.
4. Remove the Game Dongle and keep it with your cabinet. **Do not** ship the game dongle with the computer. It contains information that needs to stay with the cabinet.
5. The computer is secured in place with a U-bracket. Remove the two (2) screws at each end of the U-bracket and remove the bracket and the computer.
6. Reverse these steps to install the new computer. Make sure that the computer air vents are not blocked. There is an air vent under the bottom front panel of the computer that is easily blocked by padding or debris.
7. Connect all cables and your Game Dongle (see page 79 for a diagram of computer connections).
8. After replacing a computer, be sure to calibrate the pedals and steering (see page 28). Set up your cabinet from the Operator Menu (see Chapter 5).

When shipping the computer, always use plenty of padding and protection. GLOBAL VR recommends shipping the computer in a box with three inches of foam padding on all sides.

CAUTION: Shipping the computer without enough padding can VOID THE WARRANTY if the computer is visibly damaged from shipping.

Coin Mech Replacement

Perform the following steps to remove a coin mech. You can replace a coin mech with any standard arcade coin mech.

1. Unscrew the thumbscrews on the latches as shown by the arrows in step 1 of the figure below.
2. Slide the latches apart from each other and remove the Coin Mech as shown in steps 2 and 3.
3. Reverse these steps to re-install a coin mech. It is important to verify the operation of the newly installed coin mech with both good and bad coins.

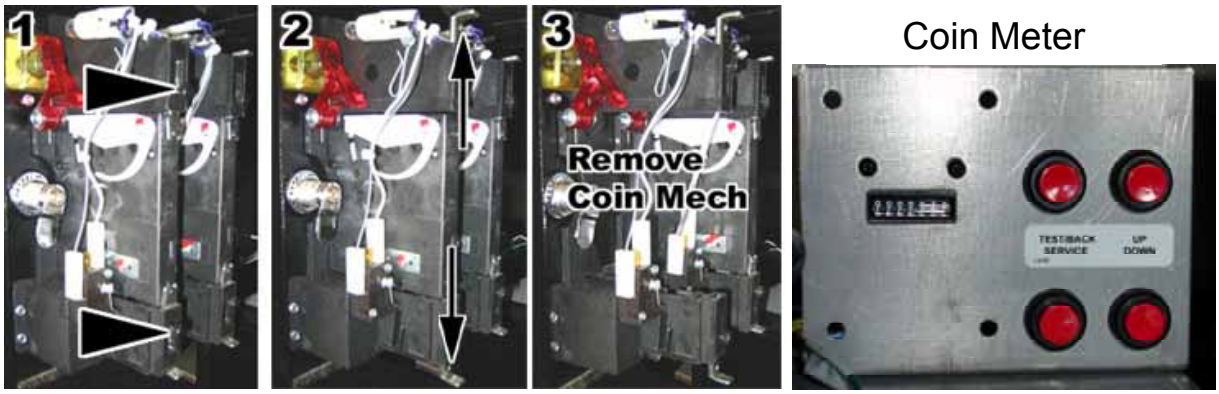

Figure 26. Servicing the Coin Mech and Coin Meter

Coin Meter Replacement

The coin meter is mounted to the operator button panel. Perform the following steps to remove the coin meter:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Remove the two Phillips screws holding the coin meter to the operator button panel and remove the coin meter.
3. Cut the two wires from the coin meter and strip the ends of the wires to attach the new meter.
4. Use two butt splices to connect the wires to the new coin meter.
5. Use the two screws to install the new coin meter.

Power Distribution Service

Primary power distribution components consist of the AC Power Plate on the back of the cabinet, the power strip that powers AC components, the Power Transformer that outputs 220 VAC for the motion base, and two DC Power Supplies that power the lighting, PCBs, and steering.

DC Power Supplies (+24 and +5/+12 VDC)

The cabinet has two DC power supplies (NOT including the power supply inside the computer).

- +24 VDC supply powers the Force-Feedback Steering System.
  Important: Connect only the steering components to this +24 VDC Power Supply. Do not use the +12 VDC Terminals on the Steering Power Supply.
- +5/+12 VDC supply powers the Audio Amp, GVRI/O Mini PCB, and lighting components.

Perform the following steps to replace a DC power supply:

SHOCK HAZARD. Disconnect the AC power cord before performing the following procedure.

If a power cord is damaged, it must be replaced by the equivalent power cord available from GLOBAL VR or your distributor.

---

1. Turn the cabinet OFF and disconnect both AC power cords.

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2. Remove the front access panel from the Display Cabinet and locate the power supply on the lower shelf.
3. Disconnect the wires from the DC power supply terminals.
4. Remove the two (2) Phillips screws holding the power supply to the cabinet. Be careful not to remove the screw that secures the terminal plate to the DC power supply.
5. Reverse the removal steps to install the new power supply. Check the labels on each wire and be sure to connect them to the correct terminals.
6. Before connecting the DC output wires, connect a volt meter and adjust the output voltage from the pot on the front of the power supply as follows:
7. +5/+12 VDC power supply: Set the +5VDC output between +5.05 and +5.1 VDC.
8. +24 VDC power supply: Set the +24 VDC output to +24 VDC.

Marquee Florescent Light Service

The Marquee is lighted by one 24" florescent fixture. To replace only a florescent tube, perform the first two steps below and then replace the tube. Do the following to replace a florescent fixture:

1. Disconnect both cabinet AC power cords.
2. Remove the screws that secure the marquee retaining bar in place above the marquee. Carefully tilt the clear plastic piece outward enough to disconnect the leader light connectors, and then remove the clear plastic with the speaker grills, leader lights, and artwork.
3. Disconnect the AC power connector from the light fixture.
4. Remove the two Phillips screws that secure the fixture to the cabinet and remove the fixture.
5. Reverse these steps to install the new fixture. Replace the fixture only with a comparable unit from GLOBAL VR.

Leader Light Replacement

The cabinet uses red LED light tubes for the Leader Light. One light tube is bolted to each of the marquee speaker grills. If you should need to replace one, perform the first three steps of the Marquee Florescent Light Service procedure above, and then unbolt the light from the speaker grill and disconnect the power connector.

Reverse the removal steps to install the new light tube.

Cold-Cathode Florescent Light Service

Cold-Cathode Florescent Lights (CCFLs) are used to illuminate the control panel and the floor under the motion base. CCFLs are powered by +12 VDC from the DC Power Supply. Perform the following steps to replace a CCFL:

1. For the Motion Base CCFLs, lower the bellows. For the Control Panel CCFLs, remove the screws that secure the upper cowling over the control panel assembly. Locate the light tubes and inverters inside the assembly.

2. To replace a light tube, disconnect the tube from the power inverter and then remove the screw-down cable ties that secure the cold-cathode tube to the cabinet.
3. To replace an inverter, disconnect the power connector and light tubes and remove the inverter from the cabinet.
4. Reverse these steps to install the new tube or inverter.

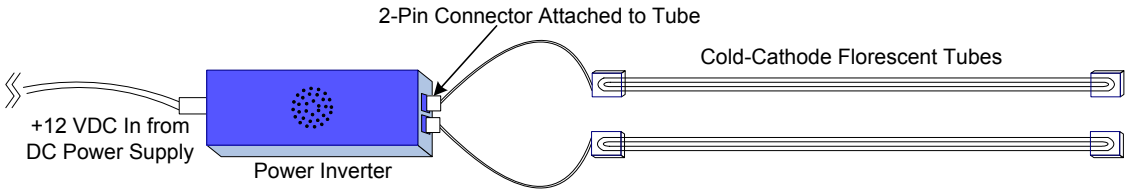

Figure 27. Cold-Cathode Florescent Light (CCFL)

Roll Bar Pad Replacement

Perform the following steps to replace the roll bar pad cover and/or pad.

1. Snip the cable ties that secure the roll bar pad to the roll bar and remove the pad.
2. Refer to the picture below and place the cover around the pad.

3. Place the pad around the roll bar and tuck the ends of the fabric under the pad. Join the two Velcro strips on the fabric.
4. Use three (3) large cable ties to secure the pad in place. Align the clasps of the cable ties with the fabric seam. Snip the ends of the cable ties flush with the clasps. Rotate the pad so the seam will face away from the players.

CAUTION: The ends of the cable ties can be sharp.
Be sure to cut them flush with the clasps.

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Cabinet Tear-Down Procedure

Refer to Figure 2 on page 10 to identify parts, and perform the following steps to disassemble the cabinet for packing or moving:

1. Turn off the Display Cabinet ON/OFF Switch and Motion Base Power Breaker and disconnect both cabinet AC power cords.
2. Open the front access door on the Display Cabinet and remove the cover from the Interconnect Bridge.
3. Remove the nuts and bolts, with washers, that secure the Coin Tower Assembly and Spacer Block to the Motion Base.
4. Remove the nuts and bolts, with washers, that secure the Motion Base and Display Cabinet to the Interconnect Bridge.
5. Disconnect the Coin Tower cables.
6. Disconnect the Cables between Motion Base and Display Cabinet, and secure them inside the display cabinet.
7. Store all Assembly Hardware and Brackets where they will not get lost. The coin box is a good place to store small hardware.
8. Lower the Caster wheels to the floor and raise the Leg Levelers fully. The Display Cabinet and Motion Base are now ready for repacking.

Repacking the Motion Base

1. The Motion Base is delivered on a custom-built pallet. This pallet should be used if you need to ship the motion base. A plywood sheet is provided to use as a ramp.
2. Roll the Motion Base onto the pallet using the plywood ramp.
3. Refasten the plywood ramp to the shipping position.
4. Fasten the Motion Base to the pallet with the ratchet strap.
5. Cover and wrap the Motion Base to prevent damage.

Repacking the Display Cabinet

1. Lift or slide the Display Cabinet onto a pallet (using a forklift is recommended).
2. Place the Spacer Block inside the bottom of the Coin Tower, and place the Coin Tower and Interconnect Bridge on the pallet with the Display Cabinet.
3. Securely strap the Display Cabinet to the pallet.
4. Cover and wrap the Cabinet to prevent damage.

Setting the Computer BIOS (CMOS)

This procedure applies to the Gigabyte GA-945GM-S2 and GA-945GCM(X)-S2 Motherboards. The screens for the GA-G31MX-S2 Motherboard look a little bit different, but the procedure and settings are the same.

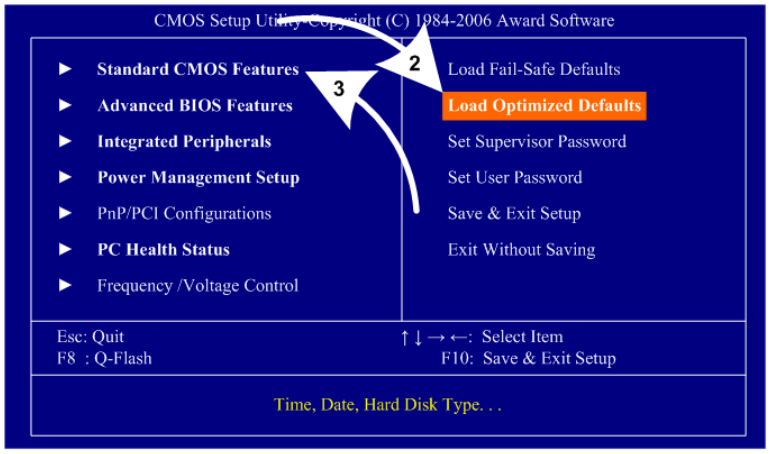
If your system has a different motherboard, check http://service.globalvr.com for updated information.

If you are comfortable using the CMOS Setup Utility, connect a keyboard to the computer and reboot the computer. Press the **DEL** key during boot to run the Utility, select **Load Optimized Defaults** from the Main Menu, and then change the settings shown in the table below. For more help, refer to the detailed instructions that follow.

Menu	Item	Setting
Standard CMOS Features	Drive A	None
	Halt On	No Errors
Advanced BIOS Features	First Boot Device	CDROM
	Second Boot Device	Hard Disk
	Third Boot Device	Disabled
Integrated Peripherals	USB Keyboard Support	Enabled
	USB Mouse Support	Enabled
Power Management Setup	AC Back Function	Full On
PC Health Status	CPU Smart FAN Control	Disabled

Important: Your screens may not look exactly like the screens shown below, and some settings shown on the screens pictures may be different from your system.
Do not change any settings that are not specifically described in this document.

1. Connect a keyboard to the computer and reboot the computer. Press the **DEL** key during boot. The CMOS Setup Utility Main Menu will appear:
2. Use the Arrow keys (↑↓→←) to select **Load Optimized Defaults**, and press **Enter**.
   Press **Y** and **Enter** when prompted to confirm the change.
3. Use the Arrow keys to highlight **Standard CMOS Features**, and then press **Enter**.



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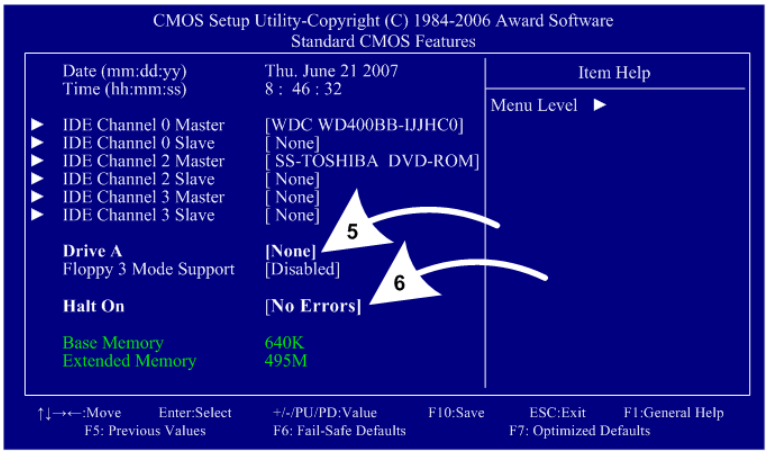
4. A screen similar to the following will appear:

5. Use the Arrow keys to highlight the setting for **Drive A** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **None**.

6. Change the setting for **Halt On** to **No Errors** the same way.

   Press **ESC** to go back to the Main Menu.


CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
Standard CMOS Features
Date (mm:dd:yy) Thu. June 21 2007
Time (hh:mm:ss) 8 : 46 : 32
IDE Channel 0 Master [WDC WD400BB-IJJHC0]
IDE Channel 0 Slave [None]
IDE Channel 2 Master [SS-TOSHIBA DVD-ROM]
IDE Channel 2 Slave [None]
IDE Channel 3 Master [None]
IDE Channel 3 Slave [None]
Drive A [None]
Floppy 3 Mode Support [Disabled]
Halt On [No Errors]
Base Memory 640K
Extended Memory 495M
Item Help
Menu Level ►
5
6
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

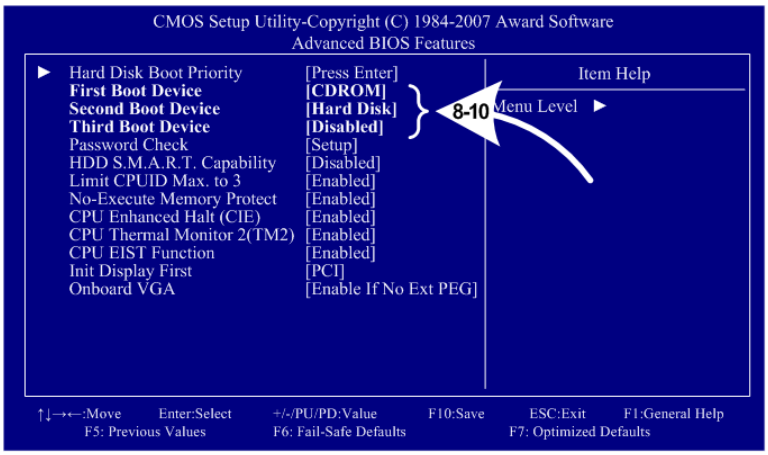
7. Now use the Arrow keys to highlight **Advanced BIOS Features** and press **Enter**. A screen similar to the following will appear:

8. Use the Arrow keys to highlight the setting for **First Boot Device** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **DVDROM**.

9. Change the setting for **Second Boot Device** to **Hard Disk** the same way.

10. Change the setting for **Third Boot Device** to **Disabled** the same way.

    Press **ESC** to go back to the Main Menu.

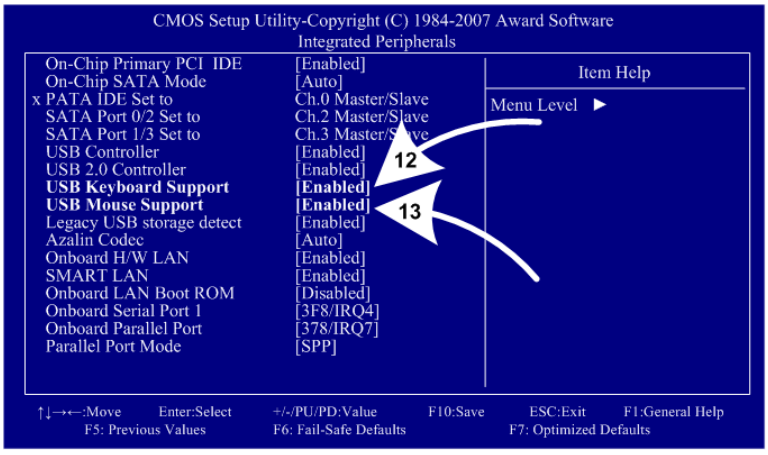

CMOS Setup Utility-Copyright (C) 1984-2007 Award Software
Advanced BIOS Features
Hard Disk Boot Priority [Press Enter]
First Boot Device [CDROM]
Second Boot Device [Hard Disk]
Third Boot Device [Disabled]
Password Check [Setup]
HDD S.M.A.R.T. Capability [Disabled]
Limit CPUID Max. to 3 [Enabled]
No-Execute Memory Protect [Enabled]
CPU Enhanced Halt (CIE) [Enabled]
CPU Thermal Monitor 2(TM2) [Enabled]
CPU EIST Function [Enabled]
Init Display First [PCI]
Onboard VGA [Enable If No Ext PEG]
Item Help
Menu Level ►
8-10
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

11. Now use the Arrow keys to highlight **Integrated Peripherals** and press **Enter**. A screen similar to the following will appear:

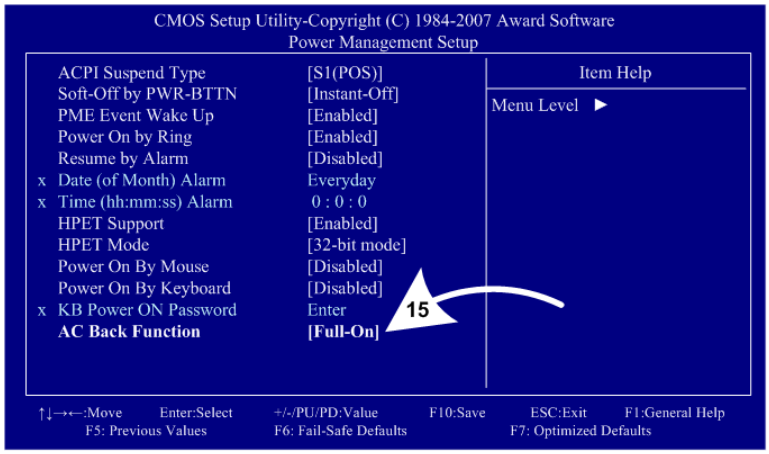
12. Use the Arrow keys to highlight the setting for **USB Keyboard Support** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **Enabled**.

13. Use the Arrow keys to highlight the setting for **USB Mouse Support** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **Enabled**.

    Press **ESC** to go back to the Main Menu.


CMOS Setup Utility-Copyright (C) 1984-2007 Award Software
Integrated Peripherals
On-Chip Primary PCI IDE [Enabled]
On-Chip SATA Mode [Auto]
x PATA IDE Set to Ch.0 Master/Slave
SATA Port 0/2 Set to Ch.2 Master/Slave
SATA Port 1/3 Set to Ch.3 Master/Slave
USB Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Keyboard Support [Enabled]
USB Mouse Support [Enabled]
Legacy USB storage detect [Enabled]
Azalin Codec [Auto]
Onboard H/W LAN [Enabled]
SMART LAN [Enabled]
Onboard LAN Boot ROM [Disabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
Item Help
Menu Level ►
12
13
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

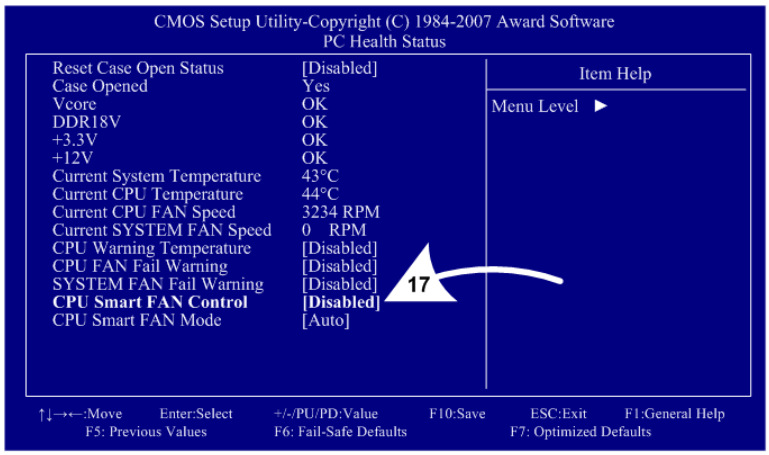
14. Now use the Arrow keys to highlight **Power Management Setup** and press **Enter**.
    A screen similar to the following will appear:


CMOS Setup Utility-Copyright (C) 1984-2007 Award Software
Power Management Setup
ACPI Suspend Type [S1(POS)]
Soft-Off by PWR-BTTN [Instant-Off]
PME Event Wake Up [Enabled]
Power On by Ring [Enabled]
Resume by Alarm [Disabled]
x Date (of Month) Alarm Everyday
x Time (hh:mm:ss) Alarm 0 : 0 : 0
HPET Support [Enabled]
HPET Mode [32-bit mode]
Power On By Mouse [Disabled]
Power On By Keyboard [Disabled]
x KB Power ON Password Enter
AC Back Function [Full-On]
15
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

15. Use the Arrow keys to highlight the setting for **AC Back Function** and press **Enter**.
    Use the **Page Up** and **Page Down** keys to change the setting to **Full-On**.

    Press **ESC** to go back to the Main Menu.

16. Now use the Arrow keys to highlight **PC Health Status** and press **Enter**.
    A screen similar to the following will appear:


CMOS Setup Utility-Copyright (C) 1984-2007 Award Software
PC Health Status
Reset Case Open Status [Disabled]
Case Opened Yes
Vcore OK
DDR18V OK
+3.3V OK
+12V OK
Current System Temperature 43°C
Current CPU Temperature 44°C
Current CPU FAN Speed 3234 RPM
Current SYSTEM FAN Speed 0 RPM
CPU Warning Temperature [Disabled]
CPU FAN Fail Warning [Disabled]
SYSTEM FAN Fail Warning [Disabled]
CPU Smart FAN Control [Disabled]
CPU Smart FAN Mode [Auto]
17
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

17. Use the Arrow keys to highlight the setting for **CPU Smart FAN Control** and press **Enter**.
    Use the **Page Up** and **Page Down** keys to change the setting to **Disabled**.

18. Now that all settings are correct, press F10. The following prompt will appear:

    Save to CMOS and EXIT (Y/N) Y

19. Make sure "Y" shows at the end of the prompt (use the arrow keys to select, if necessary), and press **Enter** to save the settings and exit.

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Setting the Date and Time

The date and time have no effect on game play and do not show up in the game. They are displayed only on the Operator Menu screens and referenced on the Collections screens. Perform the following steps if you wish to change the date and time displayed in the Operator Menus.

1. Remove the front access panel from the Display Cabinet and connect a USB keyboard to an available USB port on the back of the system computer. (Or you can connect a PS/2 keyboard to the purple PS/2 port on the back of the computer and then reboot the game.)
2. With the game running in Attract mode, press the Windows flag key on the keyboard (between the Ctrl and Alt keys). This will launch the Windows Start Menu.
3. Use the arrow keys (↑↓) to select **gvrShutdown** from the Start Menu and press **Enter**. This will shut down the game shell and allow you to access Windows features.
4. Use the up arrow key (↑) to select **Run** from the Start Menu and then press **Enter**.
5. In the Run dialog box, type **`cmd`** and press **Enter**. A command window will appear.
6. Do the following to set the date:
   a. In the command window, type **`date`** and press **Enter**.
   b. A prompt will display the current date in the format: *weekday mm/dd//yyyy*, and will prompt you to enter the date in the format: *mm-dd-yyyy*. Enter the date, with the dashes, and then press **Enter**, or press **Back Space** to make a correction.
7. Do the following to set the time:
   a. In the command window, type **`time`** and press **Enter**.
   b. A prompt will display the current time in the format: *hh:mm:ss.tt* (where *tt* means tenths of a second), and will prompt you to enter the time in the same format.

      Use the 24-hour clock, and enter the hour and minutes, with seconds being optional. (For example, 14:23:40 for 2:23:40 PM.) Press **Enter** to set the time entered or **Back Space** to make a correction.
8. Type **exit** and press **Enter** to close the command window.
9. Disconnect the keyboard and reboot the game.

Chapter 7 — Troubleshooting

Do not connect or disconnect any cables or connectors on this game with the power on. Doing so could damage the game.

Motion Base Troubleshooting

Problem	Cause	Possible Solution
Motion Platform is not level during Attract Mode	Motors not calibrated	Calibrate the motors as described on page 36.
There is no power to the Motion Base None of the Fans are working	Base not plugged in	Check the AC power cords from the wall outlets to the Display Cabinet, and the 220 VAC connection from the Display Cabinet to the Motion Base.
	Tripped Breaker on Cabinet	Check the Cabinet Breaker Switches: - Breaker on the power plate at the rear of the Display Cabinet - Power reset button on Power Distribution Box near where the power cord connects at the front of the Motion Base (see Figure 34).
	Tripped Breaker for AC Wall Outlet	Check the Breaker Switch for the AC Outlet.
	No Voltage output at the Transformer's Secondary Winding	Check the power input to the Primary Winding of the Transformer, located in the Display Cabinet. Check power output at the Transformer's Secondary Winding.
No power to any of the Motors There *IS* Power to the Motion Base The Fans are running	Motion STOP Button cable faulty or not connected properly	Check the cable connections to the Motion STOP Button and Data Distribution Box (see Figure 35).
	Motion STOP Button is faulty	Check continuity across the Motion STOP Button.
NONE of the Motors are responding There *IS* Power to the Motion Base and there is power to All Motors (Motion Base Fans are running)	Loose or faulty cable (CBL-0207-X)	Check the cable between the computer and Data Distribution Box (see Figure 35).
	Loose or faulty cable (CBL-0056-X)	Check cables from Data Distribution Box to Motor Drive Boxes (see Figure 35).
	D/A Card loose inside Computer Case	Contact Technical Support for assistance. Reseat the card if advised.
	Faulty Data Distribution Box (DDB)	Contact Technical Support for assistance.
One or Two of the Motors are not responding There *IS* Power to the motors	Faulty Motor or Drive Box (MDB)	Connect the suspected MDB to a Motor that is working. If the good Motor will not work with the suspected MDB, the MDB is faulty.
	Loose or faulty cable (CBL-0207-X)	Check the Cable between the computer and Data Distribution Box (see Figure 35).
	Loose or faulty cable (CBL-0056-X)	Check Cables from Data Distribution Box to Motor Drive Boxes (see Figure 35).

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Problem	Cause	Possible Solution
(Continued)	Loose power cord(s) (CBL-0055-X) (CBL-0059-X)	Check Power Cords from the Power Distribution Box to the Motor Drive Box. Check the Power Cable to the Motor (silver braided cable) (see Figure 35).
	Faulty Motor	Check to see if the Motor Shaft will rotate by hand (with no power to the Motor). If it will not, your Motor is faulty. If it will rotate, then check the Motor Cable (see the next item below).
	Faulty Motor Cable (CBL-0059-X)	Check continuity across the lines. The three voltage lines should have continuity. Next, check the continuity from the Voltage Lines to Ground Line. Replace cable if faulty.
Motion Base moves during Attract Mode	Faulty Motor Pot (ELC-0018-X)	Disable Motion Base. Contact Technical Support for a replacement pot.
Motor cannot find home position or Motor appears to move out of control	Faulty Motor Pot (ELC-0018-X)	Disable Motion Base. Contact Technical Support for a replacement pot.
	Pot connected to the wrong Motor Drive Box	This usually happens to a pair of Motors. Switch the cables connecting to the pots of the Motors that are out of control.
	Motor connected to the wrong Motor Drive Box	Usually happens to a pair of Motors. Switch the silver Motor Power Cables at the Motor Drive Box.
	Pot wired wrong	Compare the wiring of the suspected bad pot to the wiring of the other pots.
Cooling Fans do not work Motors are functional	Loose Cable	Make sure the Fan Power Harness is securely connected to the Power Distribution Box. **Note:** Motion base fans run on 220 VAC.
	Faulty Fan	Replace a faulty fan immediately. **Note:** Motion base fans run on 220 VAC.
	Faulty wiring	Check the fan power cord.
There is no motion	Digital-to-Analog (D/A) Converter Card in wrong slot	The Digital-to-Analog (D/A) Converter Card must be in the slot next to the video card in the System Computer.

Video Troubleshooting

Problem	Cause	Possible Solution
No picture or Corrupted picture on monitor You hear the audio	Power problem	Make sure the monitor power cord is connected to the power strip and the power strip is on. To confirm the monitor has power, press the **Menu** button on the remote control. The onscreen menu should appear.
	Loose or faulty video cable	Verify that the video cable is firmly connected from the monitor to the video card in the computer. While the monitor is powered ON, disconnect the video cable. You should briefly see a message on-screen saying *No Input Signal* if the monitor is working. Check the video cable and make sure it is not pinched or frayed. Connect the cable to a different monitor to verify video output.
	Loose or faulty video card	When the computer boots up, it performs a PC self-diagnostic test. If you hear 3 beeps from the computer, this indicates a problem with the video card. If the video card is faulty, contact Technical Support. If instructed by Technical Support, open the computer and check the following: • Make sure the video card is seated properly in the motherboard. Reseat the video card. • Check the power connector to the video card inside the computer. Make sure it is connected properly and is not connected backwards. • Power on the computer and make sure the fan on the video card is spinning fast.
No video and no audio **Note:** It takes up to 5 minutes to boot and start the game.	BIOS setting has changed	If the computer does not power on, make sure the On/Off switch on the back of the computer is in the On (I) position and *AC Back Function* in the BIOS is set to *Full On* (see page 55).
	No power to computer	Verify the computer is ON by the LED on the front of the computer. Verify the line voltage switch on the back of the computer is set to 115V. Make sure the AC power cord is firmly connected to the computer and the power strip, and the power strip LED is on. Turn off the power strip, wait 20 seconds, and then turn it back on to reboot the computer.
	Corrupted software or Faulty hard drive	Reload the software from the CDs. If you continue to have problems, you may have a faulty hard drive. Contact Technical Support.
Picture is dim or faded	Gamma and/or Vibrance needs adjustment	Adjust the monitor Gamma and/or Vibrance setting from the Operator Menu **Diagnostics** screens (see page 31). If this does not give adequate results, increase brightness using the monitor remote control.

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Audio Troubleshooting

Problem	Cause	Possible Solution
No audio	Volume set too low	Use the **VOL UP** button on the Operator Button Panel to raise the volume. Check audio settings in the Operator Menu **Machine Settings: Settings** menu, and verify that the Master Volume is set high enough. Verify the volume pots are not turned all the way down on the Audio Amp PCB (see Figure 25 on page 48).
	Faulty wiring	Turn off the game. Verify that all the wires are firmly connected to the speakers and Audio Amp PCB. Verify that each wire is connected to the correct port. Verify that no wires are frayed or improperly shorting to ground. (See on page 43.)
	Blown speakers	Remove the grills and inspect each speaker for visible damage. Run **Diagnostics: Sound Test** from the Operator Menu to verify each speaker is working.
	Faulty audio amp PCB	To verify audio is working at the computer, connect stereo headphones to each computer audio port. Test the Audio Amp PCB in another cabinet.
Poor sound from one or more speakers	Blown speakers	Remove the grills and inspect each speaker for visible damage. Run **Diagnostics: Sound Test** from the Operator Menu to verify each speaker is working.
	Reversed wires	A weak or low muffled sound is a sign of reversed speaker wires. Check for reversed wires on each speaker. (See page 43.)
	Faulty audio amp PCB	To verify audio is working at the computer, connect stereo headphones to each computer audio port. Test the Audio Amp PCB in another working cabinet.
	Faulty wiring	Turn off the game. Verify that all the wires are firmly connected to the speakers and Audio Amp PCB. Verify that each wire is connected to the correct port. Verify that no wires are frayed or improperly shorting to ground. (See page 43.)
Audio hum	Fault in AC Wiring	A constant low hum in the speakers can be caused by a ground loop, or reversed AC line and neutral wires to a component such as a power supply.

Control Troubleshooting

Problem	Cause	Possible Solution
Buttons do not work	Faulty micro switch	Replace the micro switch on the button and re-test.
	Faulty wiring	Disconnect the cabinet from AC power. Verify that all wires are firmly connected to each button and the GVRI/O Mini PCB. Verify that the wires are connected to the correct spades on the button micro switch (see Figure 21 on page 43). Verify that no wires are frayed or improperly shorting to ground. Check for broken wires at cable-tie points.
	Faulty GVRI/O Mini PCB	Make sure that all connections to the PCB are firm. Replace PCB if faulty (see page 46).
Buttons and Pedals do not work	GVRI/O Mini PCB jumpered incorrectly	Make sure jumpers are installed in positions **1** & **3** of **J5–Mode Select** on the GVRI/O Mini PCB (page 46).
Steering pulls to one side	Faulty Force-Feedback PCB	Verify that the force-feedback PCB is getting +24 VDC power. Test the PCB in a working cabinet.
	Faulty motor	Test the steering motor in a working cabinet.
	Faulty 24 VDC power supply	Use a volt meter to verify that the force-feedback power supply is putting out +24 VDC.
	Pot wires reversed	Check the wires between the steering pot and Force Feedback PCB.
Sloppy or poor steering	Poor calibration	Calibrate the steering from **Diagnostics: Play Control Test** in the Operator Menu.
	Faulty 5 KΩ steering pot	Test calibration from **Diagnostics: Play Control Test** in the Operator Menu. Replace pot if faulty (see page 41).
	Loose set screw	Check the set screws in the steering assembly.
	Loose shaft nut	Tighten the 3/4" shaft nut shown in Figure 19.
	Loose or worn drive belt	Turn off the cabinet. Open the driving control panel and check the belt on the steering motor. Also check for loose or worn gears (see page 41).
	Faulty Force-Feedback PCB	Verify that the PCB is getting +24 VDC power. Test the PCB in a working cabinet. Calibrate the steering from **Diagnostics: Play Control Test** in the Operator Menu.
Steering does not auto-calibrate	Faulty USB cable or PCI USB card	Test by connecting to a motherboard USB port. You may need to reboot twice for Windows to find the device. Also try a new USB cable. After testing, re-connect to a PCI USB port to minimize the risk of intermittent steering loss due to static shock (again, reboot twice).
	Faulty Force-Feedback PCB	Verify that the PCB is getting +24 VDC power. Test the PCB in a working cabinet.
Steering wheel shakes	Faulty 5 KΩ steering pot	Test pot for smooth resistance. If you replace the pot, be sure to calibrate it from **Diagnostics: Play Control Test** in the Operator Menu.

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Problem	Cause	Possible Solution
Steering stops working (Intermittent)	Force-Feedback PCB connected to wrong USB port	To minimize the risk static shock, the force-feedback PCB should be connected to a PCI USB port, **not** to a motherboard USB port. Static shock can cause intermittent steering feedback failure. See Figure 38 on page 79 for a diagram of the computer ports.
No force-feedback in the steering	Belt is broken	Replace belt (see page 41).
	Motor gear is worn	Inspect the motor gear and replace if worn.
	Faulty motor	Test the steering motor in a working cabinet.
	Faulty 24 VDC power supply	Use a voltmeter to verify that the power supply is putting out +24 VDC.
	Steering motor not properly grounded	Make sure the steering motor frame is properly grounded to help minimize the risk of static shock.
	Faulty Force-Feedback PCB	Verify that the PCB is getting +24 VDC power. Test the PCB in a working cabinet.
	Force-Feedback PCB connected to wrong USB port	To minimize the risk static shock, the force-feedback PCB should be connected to a PCI USB port, **not** to a motherboard USB port. Static shock can cause intermittent steering feedback failure. See Figure 38 on page 79 for a diagram of the computer ports.
Shifter does not work in one gear	Faulty micro switch	Replace the faulty micro switch. See *Four-Speed Shifter Service* on page 44.
	Pinched wire	Make sure wires are not pinched by the shifter housing.
Shifter goes into wrong gear	Wires are switched or pinched	Make sure all wires are connected to correct micro switches and are not pinched by the shifter housing.
Shifter does not work	Faulty GVRI/O Mini PCB	Check wiring between the shifter and GVRI/O Mini PCB. Replace PCB if faulty.
Gas or brake does not work properly	Pot is out of calibration	Calibrate the pedals from **Diagnostics: Play Control Test** in the Operator Menu. If you replace a pot or the computer, always recalibrate the pedals. (Pedals **do not** auto-calibrate when you reboot the game.)
	Faulty 5 KΩ pot	Test the pot for smooth resistance. If you replace the pot, be sure to calibrate the pedals from **Diagnostics: Play Control Test** in the Operator Menu.
	Loose set screw	A loose set screw can cause the pedal to work only on a partial range of its motion. Tighten the set screw.
Feels like brake is always on during game	Dead spot in the brake pot	Test the brake pot and replace if bad. See page 43.

Cabinet Linking Troubleshooting

Problem	Cause	Possible Solution
Cabinet will not link	Faulty wiring	Verify that a CAT-5 or better Ethernet cable is connected between the Ethernet port on the AC Power Plate and the computer. While the cabinet is powered on and connected to another cabinet, verify the green LED on the Ethernet card is lit. If you are using an Ethernet hub or switch, verify green LEDs on the hub or switch light for each Ethernet port that is connected. **Note:** CAT-5 cables have 8 wires.
	Incompatible coupler used	Do not use a crossover coupler to link this game.
Cabinet does not link in software	Duplicate Link ID numbers	A cabinet with a duplicate Link ID number will display the *Select A Link ID* menu. You can also check or change the Link ID from the Operator menu **Machine Settings: Settings** screen. Each cabinet in a linked group must have a unique Link ID number.
	Faulty Ethernet hub or switch	Verify the LEDs on the Ethernet hub or switch are lit for each port used. If possible, verify the hub or switch is working by connecting it to a known working computer network or set of linked cabinets.
	Hub or switch is not 10/100/1000 Mbps	Use a 10/100/1000 Mbps (Gigabit) hub or switch to link more than two cabinets.
	Mixed Software Comm Version	Verify that all cabinets are running the same Comm Version. (Shown in **Machine Settings: Info** screen.)

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Miscellaneous Troubleshooting

Problem	Cause	Possible Solution
No power	Power strip not plugged in or turned off	Make sure the power strip ON/OFF switch is ON, and the light on the power strip is on. If the light is off, make sure the connections to the AC power plate and power transformer terminals are secure.
	Cabinet not connected or turned off	Make sure the AC power cord is firmly connected to the power plate and an active AC outlet, and the cabinet ON/OFF switch is ON.
Game Dongle not found by system computer	Game Dongle not connected	Make sure the Game Dongle is securely connected. Power the cabinet off and then on.
	Faulty Game Dongle	Make sure the dongle is connected properly. It will light-up red when recognized by the computer.) Contact Tech Support to exchange a faulty dongle.
	Faulty USB port	Test the dongle in a PCI USB port.
Cabinet gets very warm	Faulty ventilation fan	Verify that the ventilation fan is working. It is located above the monitor access door on the back of the cabinet. Replace the fan if it is worn or spinning slowly.
	Cabinet ventilation holes are blocked	Make sure you have proper clearance between the cabinet rear and the wall. Make sure the vent holes are clear of dust and debris and that air is freely blowing out of the cabinet.
Marquee lamp does not light or is intermittent	Faulty florescent tube	Check the florescent tube for darkened or cracked end. Replace the florescent tube if it looks worn.
	Faulty florescent fixture	Verify the florescent tube pins make a good connection with the lamp fixture. Check the ballast for proper operation. Replace fixture if faulty.
Disabled Tracks are Still Available	Cabinet Mismatch	All linked cabinets must have the same tracks enabled or the software ignores Disable Track settings.
Game will not accept coins	Faulty coin mech	Verify the coin mech is not jammed and is properly aligned and latched to the coin door.
	Faulty ground wire	Check the ground wire to the coin door.
Wrong number of credits shown	Incorrect setting	Adjust settings from the Operator Menu.
	Faulty wiring	Disconnect cabinet power cord. Check all coin mech wiring. Verify no wires are frayed or shorting to ground.
Optional DBA not working	Incorrect dipswitch setting	Set dipswitches for Long Pulse or Gaming (***not*** Short Pulse or Vending).
Some tracks and drivers missing	International Cabinet	Due to licensing issues, some tracks and drivers available in the USA are not available internationally.
Wrong Date or Time in Menus	Date or time set wrong in software	See *Setting the Date and Time* on page 58.
Very long wait before System Recovery Disk runs	Drive A is enabled in the BIOS Settings	Check the BIOS settings (see page 55). Under *Standard CMOS Features,* set *Drive A* to *None*.

Error Message Screens

The messages below may appear at boot if the software detects a hardware problem.

Boot Error Message	Explanation and Solution
Dongle Missing or Invalid	Make sure the USB Game Dongle is firmly connected.
Invalid Dongle: Incorrect Game Version	Dongle does not match game version. If you upgrade the software, be sure you connect the corresponding Game Dongle.
There is a CD in the Drive	Eject the CD from the drive. Press the **START** button to continue to boot the game.
Error Detected with GVRIO Board	The GVRI/O Mini PCB is either disconnected or malfunctioning. Make sure jumpers are installed in positions **1** & **3** of **J5—Mode Select** (see page 46). Check all connections to the PCB. Replace the PCB if faulty. Make sure jumpers are installed in positions **1** & **3** of **J5—Mode Select** (see page 46).
Incorrect GVRIO Board	The screen will display the revision numbers of the GVRI/O Mini PCB installed, and the one required. Contact your distributor to order the correct GVRI/O Mini PCB.
Duplicate Link ID Please Select a New Link ID	The cabinet has the same Link ID as another cabinet. Turn the steering wheel to select a different Link ID from the numbers displayed. Numbers displayed in **gray** are available. Turn the wheel to select an ID and press the **START** button. Remember to number your cabinets in sequence from left to right.
Steering Auto-Calibration failed. Please turn the wheel all the way to the left and all the way to the right	The software detected a problem with steering. Once you turn the wheel, the software will determine whether the problem is with the steering pot or the force-feedback. If the problem is with the force feedback, you will be given the option to start the system without force feedback. If the steering pot is not working, the game cannot be started. See page 40 for steering service.
Attract Mode Error Messages	**Explanation and Solution**
A **Red Dot** appears in the lower right corner of the Attract Screen	Indicates hardware error, usually with a button, gas or brake pot, or steering. Explanation is displayed on **Machine Settings: Info** screen in Operator Menu.
A **Blue Dot** appears in the lower right corner of the Attract Screen	Indicates Cabinet Mismatch error in linked cabinets. Explanation is displayed on **Machine Settings: Info** screen. The following conditions will cause a Blue Dot error message: • **Winner Gets Free Game** not set the same on all cabinets • **Free Game Min Players** not set the same on all cabinets • **Race Length** not set the same on all cabinets • Duplicate Cabinet Link ID • Different Software Comm Version on one or more cabinets • Different Tracks Disabled • Different Region (Set by Game Dongle)

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Chapter 8 — Replacement Parts

If you need replacement parts, please reference these part numbers when contacting GLOBAL VR® technical support or your distributor.

Notes: Part numbers may change due to hardware or software revisions.
Qty column refers to quantity used per cabinet.

Documents and Software

Part Number	Qty	Description
040-0167-01	1	Operation & Service Manual, Rev. B for Software Version 1.5
040-0171-01	1	Software Restore Guide, Rev. B for Software Version 1.5
050-0156-01	1	System Recovery Disk, Version 1.5, Track & Team Update
050-0157-01	1	Game Install Disk, Version 1.5, Track & Team Update
050-0159-01	1	Motion Install Disk, Version 1.5, Track & Team Update

Cables

Part Number	Qty	Description
115-0005-02	1	Cable, Steering to Force-Feedback PCB
115-0006-01	1	Cable, Steering Motor to Force-Feedback PCB
115-0007-01	1	Cable, +24VDC to Force-Feedback PCB
115-0008-01	2	Cable, 110VAC to Power Supply (PCBs, Lighting, & Steering Power)
115-0012-01	1	Cable, Amp to Display Cabinet Speakers
115-0121-01	1	Cable, 6', 110VAC to +24VDC Power Supply (LCD Monitor Power)
115-0145-01	1	Cable, Audio Amp to Seat Harness
115-0146-01	1	Cable, Main Harness, GVRI/O, Power, USB
115-0058-01	1	CBL,12/5VDC, 5'
96-0539-00	3	Cable, Stereo, 3.5 mm 6'
CBL-0033-X	1	Cable, Crossover, CAT6
USB-AB06MM	2	Cable, USB Cable 6FT,
USB-AB-6MF	1	Cable, USB, 6' Extension
ELC-0222-X	1	Cable, Ethernet, CAT 5
CBL-0229-X	1	Cable, AC TO DB-ACC (P-9)
CBL-0600-X	1	Cable, Steering Pot (P-1)
CBL-0601-X	1	Cable, 90VDC,ST-MOT (P-2)
CBL-0602-X	1	Cable, LOOK-BACK Button (P-3)
CBL-0603-X	1	Cable, COIN-TEST,NASCAR (P-4)
CBL-0604-X	1	Cable, Seat Speakers (P-5)
CBL-0605-X	1	Cable, Shifter (P-6) Shifter to Interconnect Bridge
CBL-0606-X	1	Cable, T-SPEAKER (P-8)
CBL-0300-X	1	Cable, E-STOP (P-10)
CBL-0616-X	1	Cable, Shifter, GVRI/O PCB to Interconnect Bridge
CBL-0081-X	1	Cable, HDMI to DVI, 6'
CBL-0207-X	1	Cable, DDB to PCI DA Card
CBL-0055-X	3	Cable, PDB to MDB
CBL-0056-X	3	Cable, DDB TO MDB
CBL-0058-X	3	Cable, MDB TO POT CONN.
CBL-0059-X	3	Cable, MDB TO MOTOR
CBL-0060-X	1	Cable, DDB TO E-STOP
CBL-0024-X		Main AC Power Cord, 15A
CBL-0025-X		Main AC Power Cord, 25A

Cabinet Hardware

Part Number	Qty	Description
Electronics		
990-0019-01	1	Monitor, DLP
USB-KQRTG-HL-NAS-US-ND	1	Game Dongle (Exchange Only)
990-0014-NS	1	GVR-I/O Mini PCB
990-0001-01	1	Audio Amp PCB
ELC-0005-1	1	E-STOP Button Assembly
ELC-0053-X	1	Transformer
ELC-0023-X	1	Power Plate with Switches, Dual Input
CPU-0008-X	1	DA Card (in System Computer)
45074-00	1	System Computer
ELC-0008-X	2	Fan, 230VAC, w/Harness
CBL-0041-X	1	Fan Power Cord, 230VAC
ELC-0001-X	1	Power Distribution Box
ELC-0002-M	1	Data Distribution Box
ELC-0003-X	3	Motor Drive Box
ELC-0005-1	1	Motion STOP Button
ELC-0112-1	1	Motion STOP Button Contact Block & Switch
ELC-0053-X	1	Power Transformer, 115 VAC to 230 VAC
49-0963-40	1	Power Strip, 7-Outlet, Surge Protected, 15A,
IMP-44-600,44-0600	1	Power Supply, 24V,
IMP-44-1100-01	1	Power Supply, +12V,5V,
ELC-0024-X	1	Coin Meter Assembly, +5V
CCFL2R	2	Cold-Cathode Florescent Light Kit, Red, 12"
Casters & Levelers		
FNA-0012-X	2	Caster, Rigid, 3", Albion
FNA-0013-X	2	Caster, w/Swivel, 3", Albion
FNA-0015-X	6	Leveler, Motion Base, 5/8 x 11
Driving Controls		
50-0102-14	1	Steering Assembly, with motor & wheel (See Figure 29 on page 70)
68086925	4	Acorn Nut, M10x1.5, Zinc
COEM-GCE-H2P5A	1	Immersion Force-Feedback PCB
59-6004-800H1628	1	START button assembly
59-6004-855H1625	1	VIEW button assembly
59-6004-855H1626	1	MUSIC (♪) button assembly
59-6004-855H1648	1	LOOK BACK Button Assembly
50-8496-NAS	1	4-Speed Shifter (See Figure 28 on page 70 for Details)
95-4118-00	4	Micro Switch for 4-Speed Shifter
ELC-0027-X	1	Gas Pedal Assembly
ELC-0028-X	1	Brake Pedal Assembly
Motor & Push Rod Assembly Parts		
ELC-0120-X	3	Motion Drive Motor
ELC-0018-X	3	Potentiometer (Pot), Motion Drive Motor
ELC-0117-X	3	Potentiometer (Pot) Harness, Motion Drive Motor
ELC-0018-X	3	Pot-Encoder, 5K, 6639-S-502
ELC-0117-X	3	Harness, Potentiometer, Cobra
SHT-0095-X	3	Block, Top Plate, Cobra Arm
SHT-0094-X	3	L-Block, Pot Support, Cobra
SHT-0093-X	3	Plate, Circular, Pot Adjust
SHT-0092-X	3	Shaft Yoke, Bellcrank, Cobra
SHT-0091-X	3	Crank1, Bellcrank, Cobra
SHT-0090-X	3	Crank, Bellcrank, Cobra
SHT-0089-X	2	Tube Cap Fillet
SHT-0088-X	3	Shaft, Bearing Block, Cobra
SHT-0086-X	6	Washer, Bearing, Cobra
ELC-0020-X	3	Socket, Strain Relief, Metric
FSN-0043-X	3	Coupler, Elastic, Viper Pot
MCH-0013-X	3	PUSH RODS, 3 DOF, VIPER

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Part Number	Qty	Description
Miscellaneous Hardware		
PLA-0064-X	1	Bellows Assembly
ELC-0504-X	1	Coupler, RJ-45
PLA-0081-X		Faceplate for RJ-45 Coupler
40-6000-08		Coin Door Assembly, Two Mechs
50-0244-NDNC	1	Seat Assembly with Speakers and Grills
50-0400-00		Seat Slide Assembly
FNA-0008-X	10'	Anti-Skid Tape
SHT-0035-X	1	U-Bracket to Secure System Computer

Shifter Assembly

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	96-0094-00	BASE PLATE 4 SPD SHFT BLK
2	1	96-0095-00	SIDE BRACKET W/PIN CLR ZNC PLT
3	1	96-0084-00	GATE BLOCK UPPER MOLDED
4	1	96-0092-00	SIDE BRACKET NO PIN CLR ZNC PLT
5	1	96-0088-00	GATE BLOCK LOWER MOLDED
6	1	50-8390-00	INNER BOX A, SUB ASSY, PLT
7	1	50-8418-00	INNER BOX, B, ASSY
8	1	50-8346-00	TRUNNION, FOR I.L. TURBO SHIFTER
9	1	96-0090-00	KNOB & SHAFT ASSY 1-3/4 BLK BALL KNOB
10	1	50-8299-00	ANCHOR PIN, HANDLE BLK OXD.
11	1	96-0085-00	RETAINER PLATE
12	4	96-0089-00	ACTUATOR, SPRING STEEL
13	4	95-1807-00	DB STYLE MINATURE SWITCH
14	6	43-0133-00	#14S BRS FLAT WSH .26X.56X.04
15	4	43-0118-00	E-RING, 1/4" SHAFT DIA
16	1	50-8414-00	TOP PLATE, SCREENED, 4-SPD SHFT, RED
17	1	50-8422-00	GUIDE WASHER, 4 SPD SHIFTER
18	2	50-8406-00	BUSHING, NYLINER, F/.078 THK MAT.
19	2	50-8491-00	BUSHING NYLINER F/.072/.135 THK MAT.
20	4	43-0307-00	SCREW, 8-32X3/4 PH P. H. MS
21	8	43-0252-00	SCREW, #8-32 x 3/8 HEX HEAD
22	2	43-0134-00	SCREW, 8-32X5/16" PH HD MS W/SEMS E-WSH
23	1	50-8118-00	E-RING FOR GEAR SHIFTER M15
24	2	50-8294-00	SPRING, HAIRPIN, HLR SHFTR, SHORT

NOTES:
NOT SHOWN 90-1013-00 (TIE WRAP 4" LENGTH)
Drawing © Happ Controls.

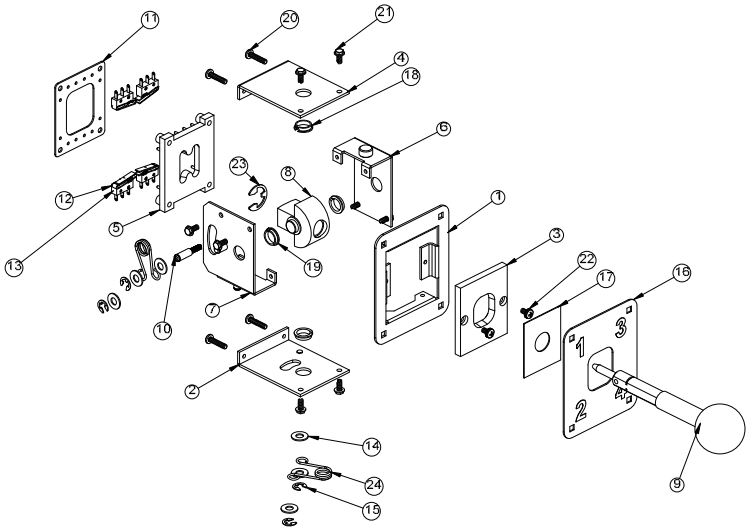

Figure 28. Shifter Assembly Exploded View and Parts

Steering Assembly

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	43-0341-00	SCREW, 1/4-28 X 1 SHCS
2	1	50-4014-00	SHAFT, 270 DEG. ACTIVE WHEEL
3	1	43-0305-00	KEY, 3/16 SQ. X .74
4	2	43-0232-00	NUT, HEX NYLOCK 1/2-20
5	1	43-0340-00	LOCKWASHER, EXT. M12
6	1	50-2092-00	KEY, SHAFT 4MM x 4MM x 25MM
7	1	43-1170-00	SCREW, #8-32 x 3/8" SHCS
8	1	50-4043-00	MOTOR & CONNECTOR ASY.
9	1	50-4016-00	WHEEL MTG. BRACKET
10	1	50-8129-00	BEARING HOUSING
11	2	50-8130-00	BEARING, .59 ID X 1.259 OD
12	1	50-8455-00	MOTOR MTG. BRACKET
13	1	50-2659-00	BEARING SPACER
14	1	50-4040-PL	PULLEY, 16T 1/5 PITCH, PLASTIC
15	4	43-0188-00	SCREW, #8-32 x 3/8" HEX WASHER HD
16	1	43-0576-00	SCREW, M6 x 60MM HHCS
17	1	90-1208-00	FLAT WASHER, 1/4 I.D.
18	1	50-2545-00	BRACKET, BELT TENSIONER
19	4	42-0093-00	NUT 10-32 HEX W/SEMS, ZINC PLTD
20	2	43-0117-00	HEX HD CAP SCREW M10x30,GR 8.8
21	2	43-0978-00	SCREW, M10 x 40MM HHCS
22	1	50-8145-00	DIE CAST WHEEL STOP, W/BUMPERS
23	4	43-0034-00	LOCKWASHER M10 RIBBED
24	4	43-0035-00	NUT HEX M10
25	1	50-4045-PL	STOPPER PIE CAM & PLASTIC PULLEY
26	1	50-4041-00	TIMING BELT, BLACK 3/8" WIDE
27	1	50-2670-00	5K POT, NEI "SENSORCUBE"
28	1	43-0018-00	LOCKWASHER, INT. 3/8" x 9/16"
29	1	43-0014-00	HEX NUT 3/8"-24 X 3/32 THK
30	1	50-4018-00	POT. MTG. BRACKET
31	1	50-4032-00	SPACER, POT MTG. BRACKET
32	1	43-0184-00	SCREW, #10-32 x 3/8" PHPNHD
33	1	43-0995-00	#10 FLAT WASHER
34	1	43-0735-00	SCREW, M4 X 12 SHCS
35	1	50-2511-00	ATARI GAMES PATENT DECAL
37	1	50-2525-00	SPLIT HUB FOR 5/8" SHAFT & 1/4-20 TAP
38	1	50-1035-00HD	HOOP, SOFT RUBBER TYPE 60 DUROM
39	1	50-2715-00	CAP WITH CHECKERED FLAGS LOGO
40	3	43-0328-00	SCREW, 1/4-20 X .75" SOCKET HD CAP B.O.
41	6	43-0284-00	SCREW, 8-32 X 1/2 TORX TP B.H.
42	1	43-1554-00	STAR WASHER M14 EXTERNAL TOOTH

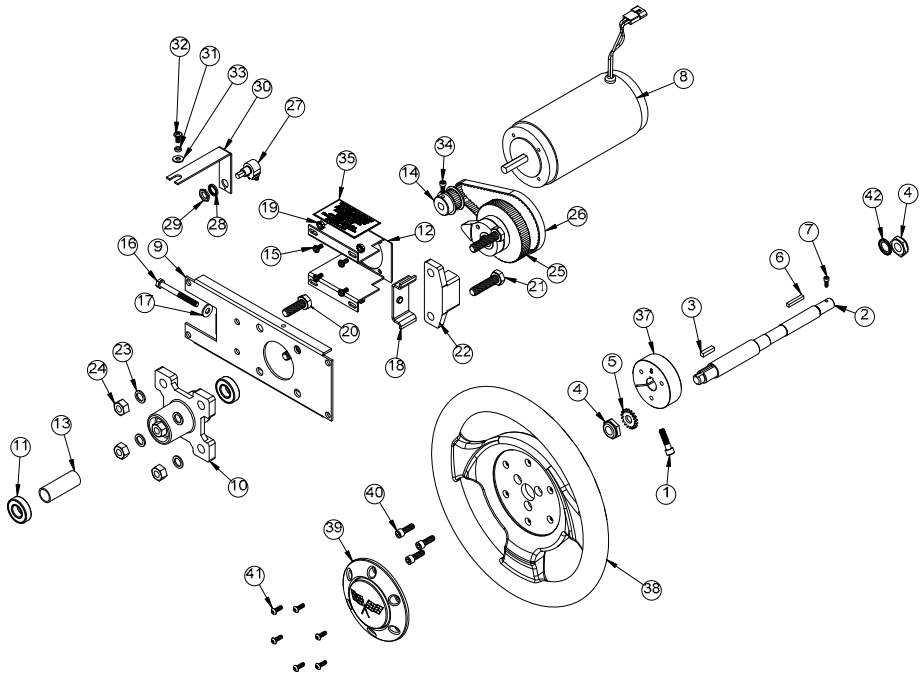

Figure 29. Steering Assembly Exploded View and Parts

Cabinet Artwork

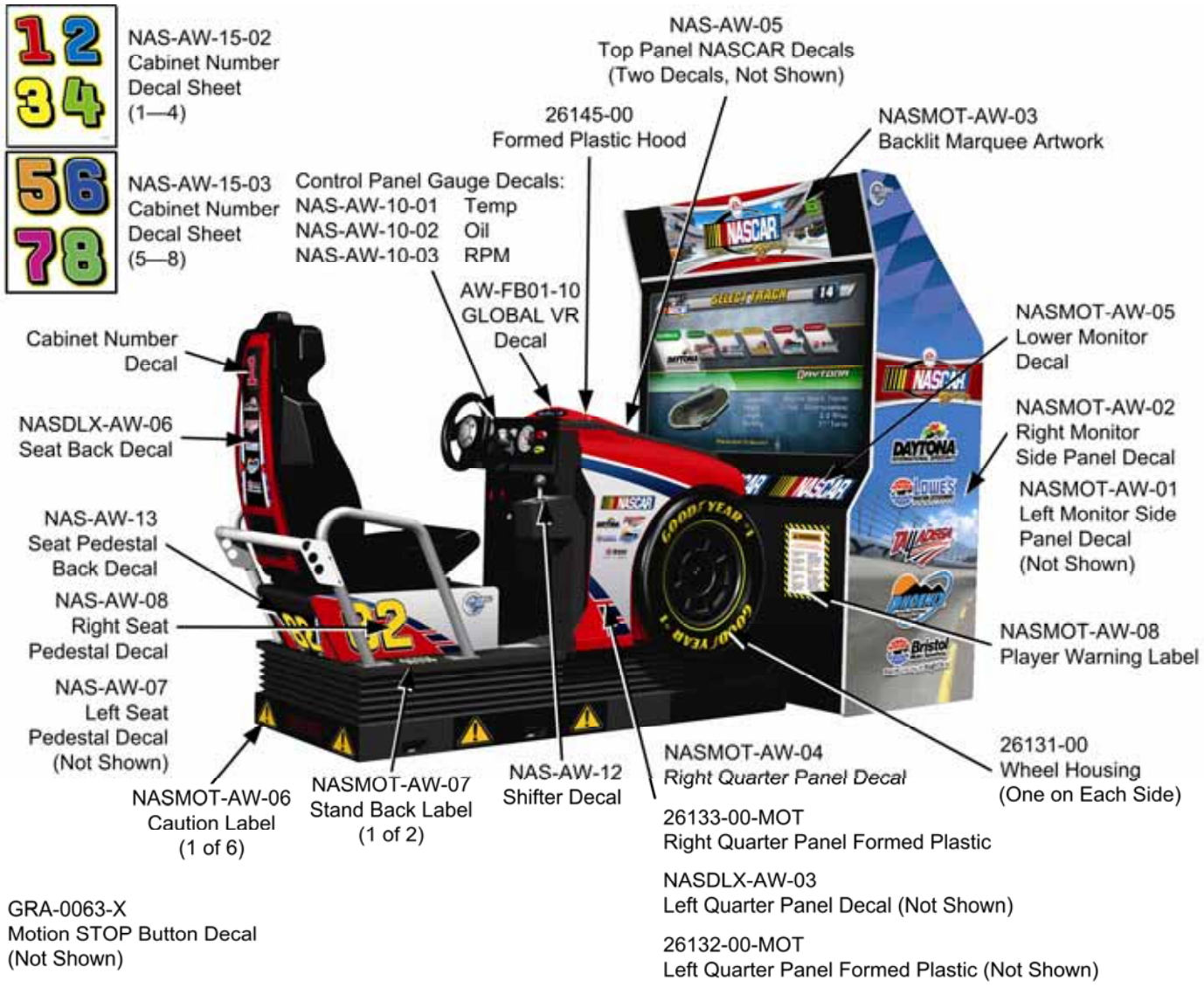

Figure 30. Cabinet Artwork and Formed Plastic

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Chapter 9 — Diagrams and Schematics

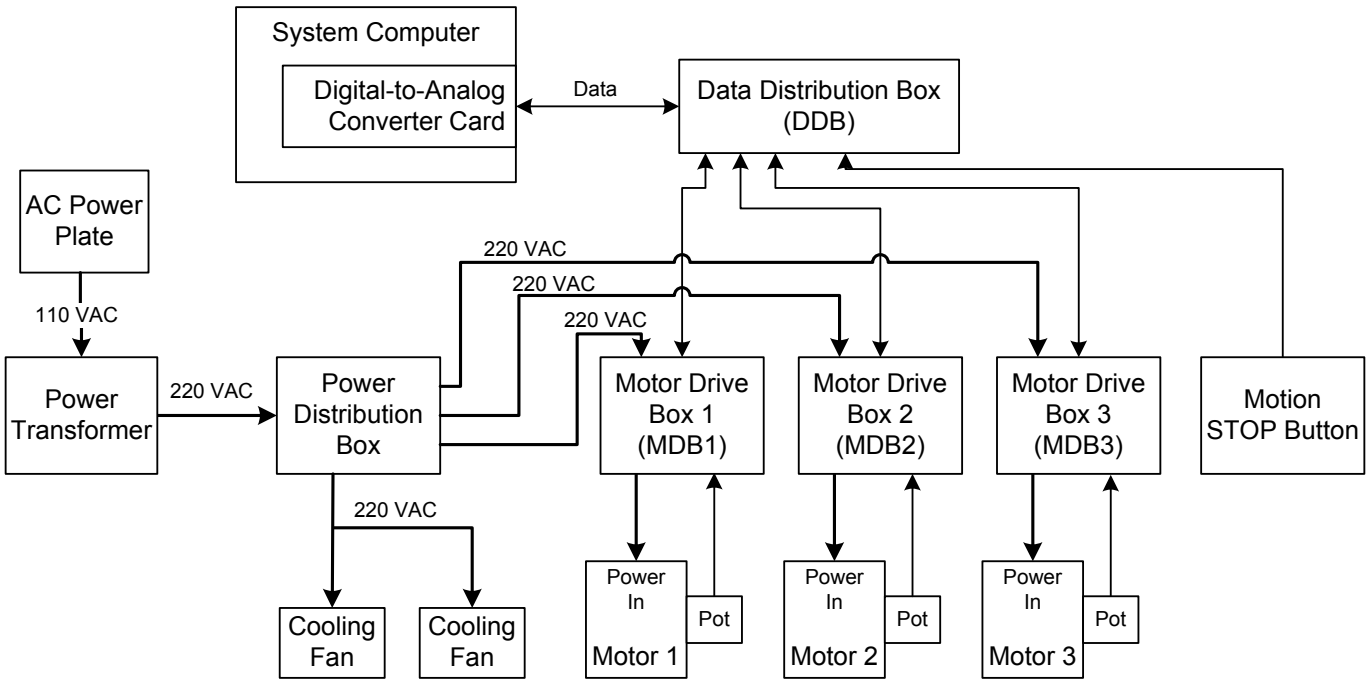
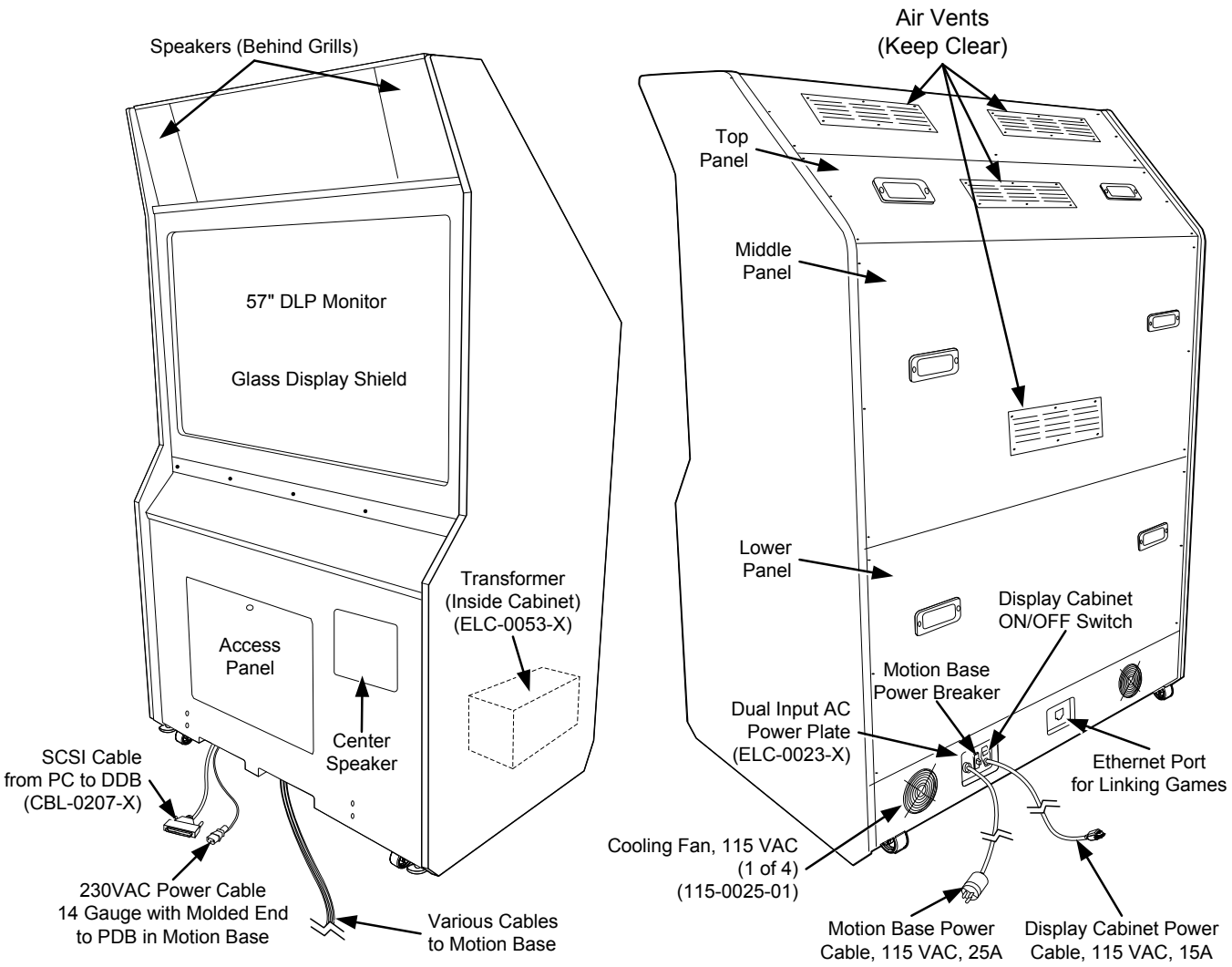


Figure 31. Motion Control System Simplified Block Diagram


Speakers (Behind Grills)
57" DLP Monitor
Glass Display Shield
Access Panel
Center Speaker
Transformer (Inside Cabinet) (ELC-0053-X)
SCSI Cable from PC to DDB (CBL-0207-X)
230VAC Power Cable 14 Gauge with Molded End to PDB in Motion Base
Various Cables to Motion Base
Air Vents (Keep Clear)
Top Panel
Middle Panel
Lower Panel
Display Cabinet ON/OFF Switch
Motion Base Power Breaker
Dual Input AC Power Plate (ELC-0023-X)
Ethernet Port for Linking Games
Cooling Fan, 115 VAC (1 of 4) (115-0025-01)
Motion Base Power Cable, 115 VAC, 25A
Display Cabinet Power Cable, 115 VAC, 15A

Note: To open the cabinet, remove the screws securing the top panel first and remove the top panel; next remove the screws securing the middle panel and remove the middle panel; finally remove the screws securing the lower panel and remove the lower panel.

Figure 32. Display Cabinet Components

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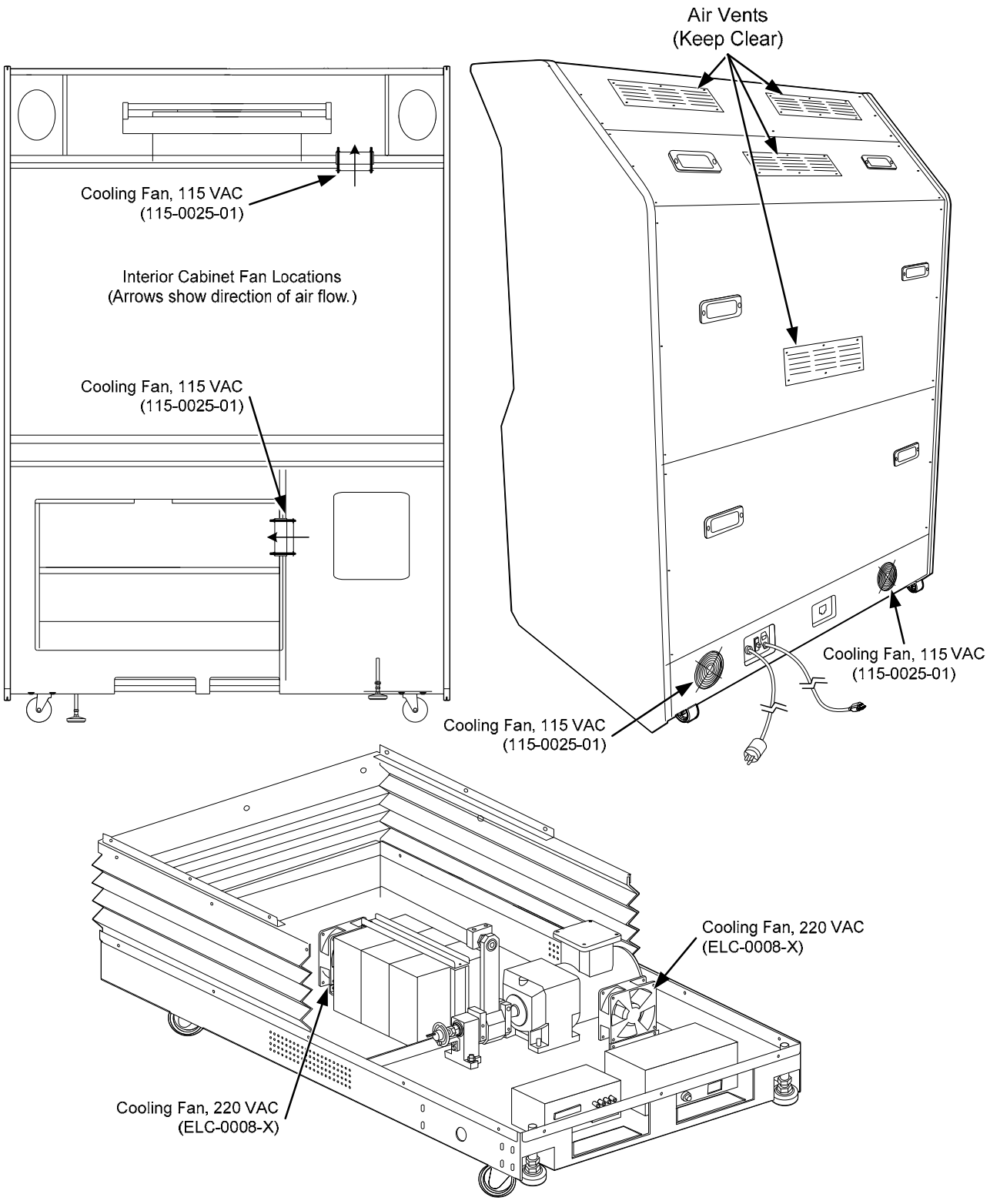

Figure 33. Cooling Fan Locations

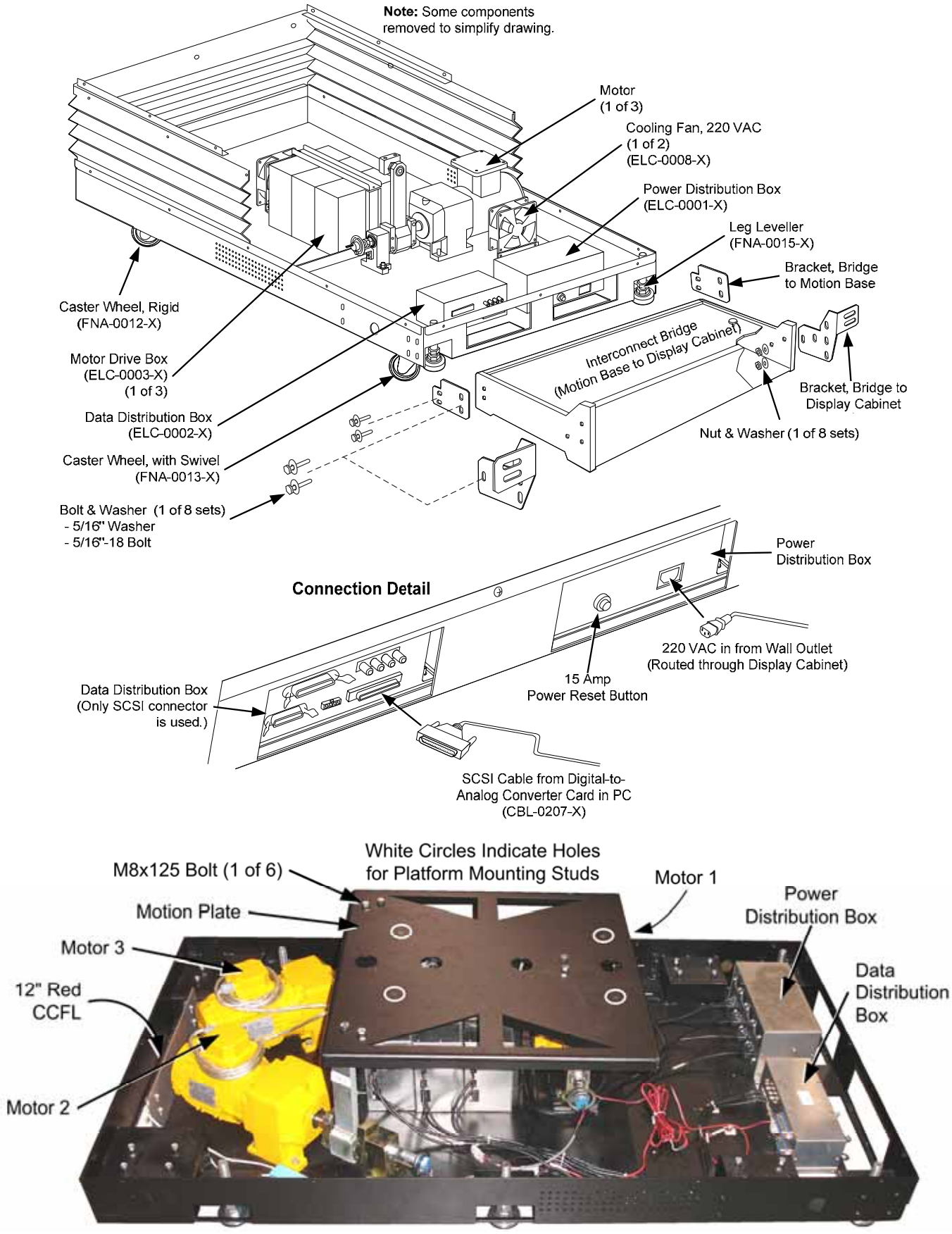
Note: Some components removed to simplify drawing.
Motor (1 of 3)
Cooling Fan, 220 VAC (1 of 2) (ELC-0008-X)
Power Distribution Box (ELC-0001-X)
Leg Leveller (FNA-0015-X)
Bracket, Bridge to Motion Base
Caster Wheel, Rigid (FNA-0012-X)
Motor Drive Box (ELC-0003-X) (1 of 3)
Interconnect Bridge (Motion Base to Display Cabinet)
Bracket, Bridge to Display Cabinet
Data Distribution Box (ELC-0002-X)
Nut & Washer (1 of 8 sets)
Caster Wheel, with Swivel (FNA-0013-X)
Bolt & Washer (1 of 8 sets)
- 5/16" Washer
- 5/16"-18 Bolt
Connection Detail
Power Distribution Box
220 VAC in from Wall Outlet (Routed through Display Cabinet)
15 Amp Power Reset Button
Data Distribution Box (Only SCSI connector is used.)
SCSI Cable from Digital-to-Analog Converter Card in PC (CBL-0207-X)
White Circles Indicate Holes for Platform Mounting Studs
M8x125 Bolt (1 of 6)
Motor 1
Motion Plate
Power Distribution Box
Motor 3
Data Distribution Box
12" Red CCFL
Motor 2

Figure 34. Motion Base Components

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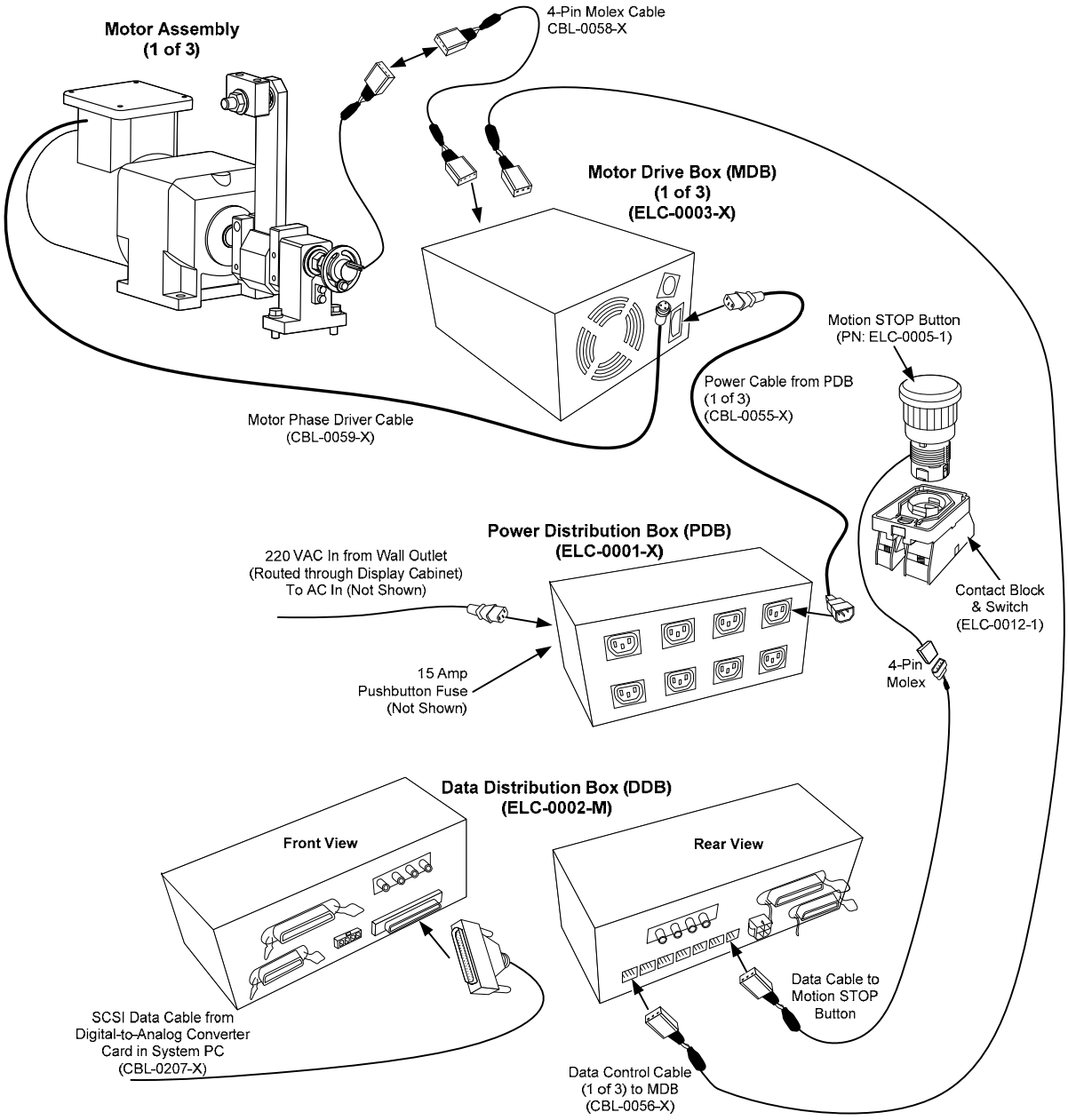

Figure 35. Motion Drive Components

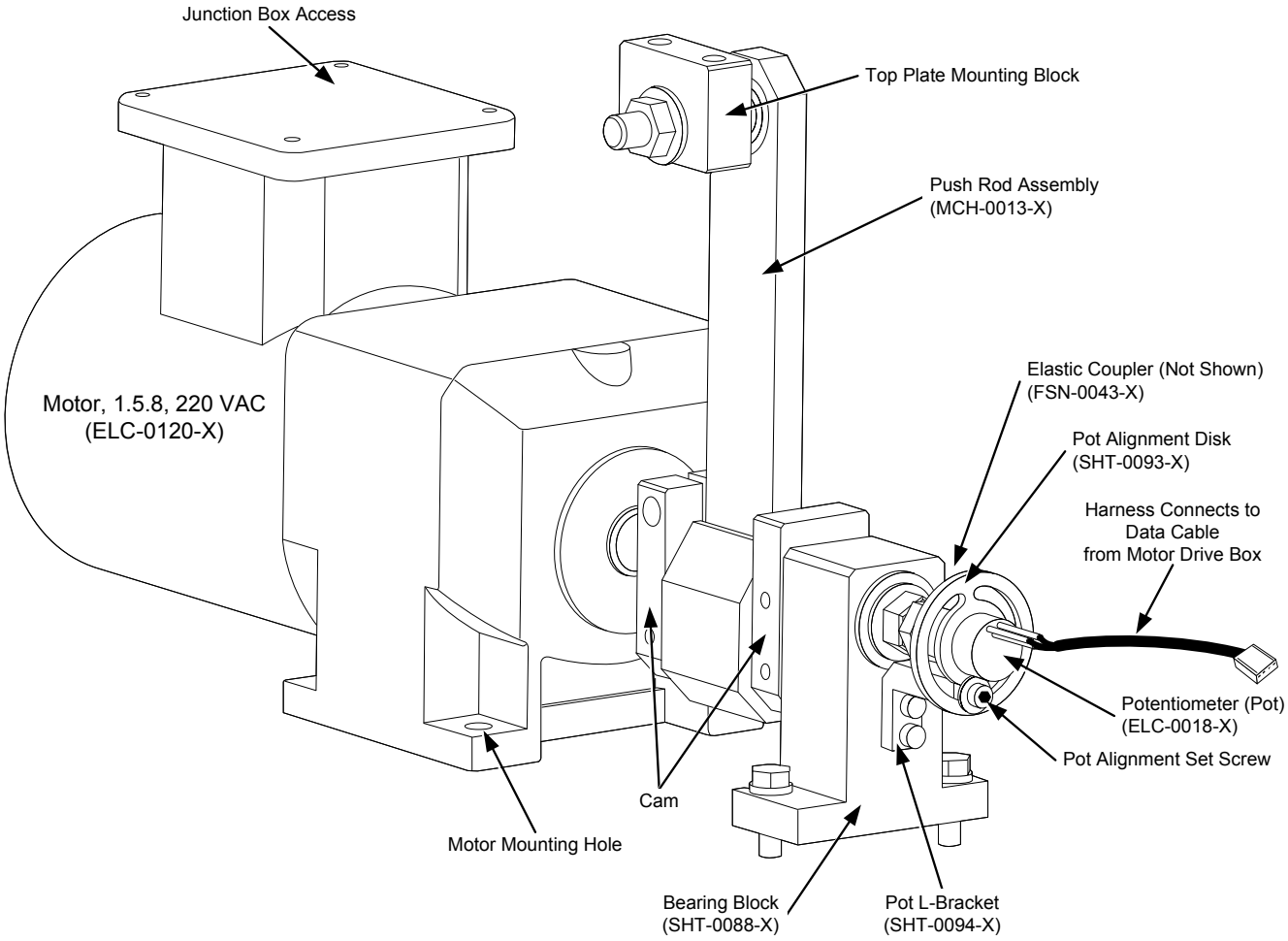

Figure 36. Motor Assembly

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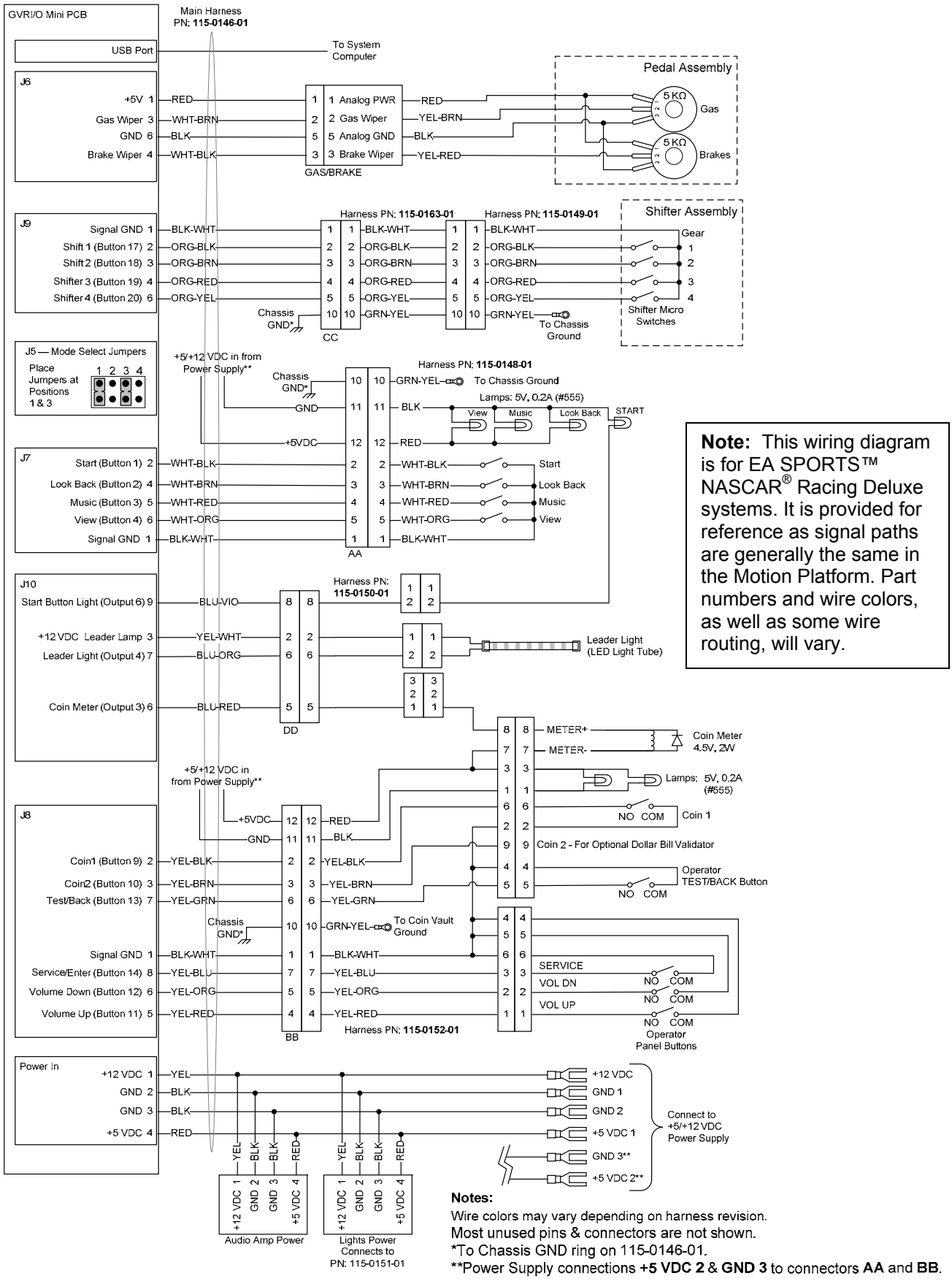
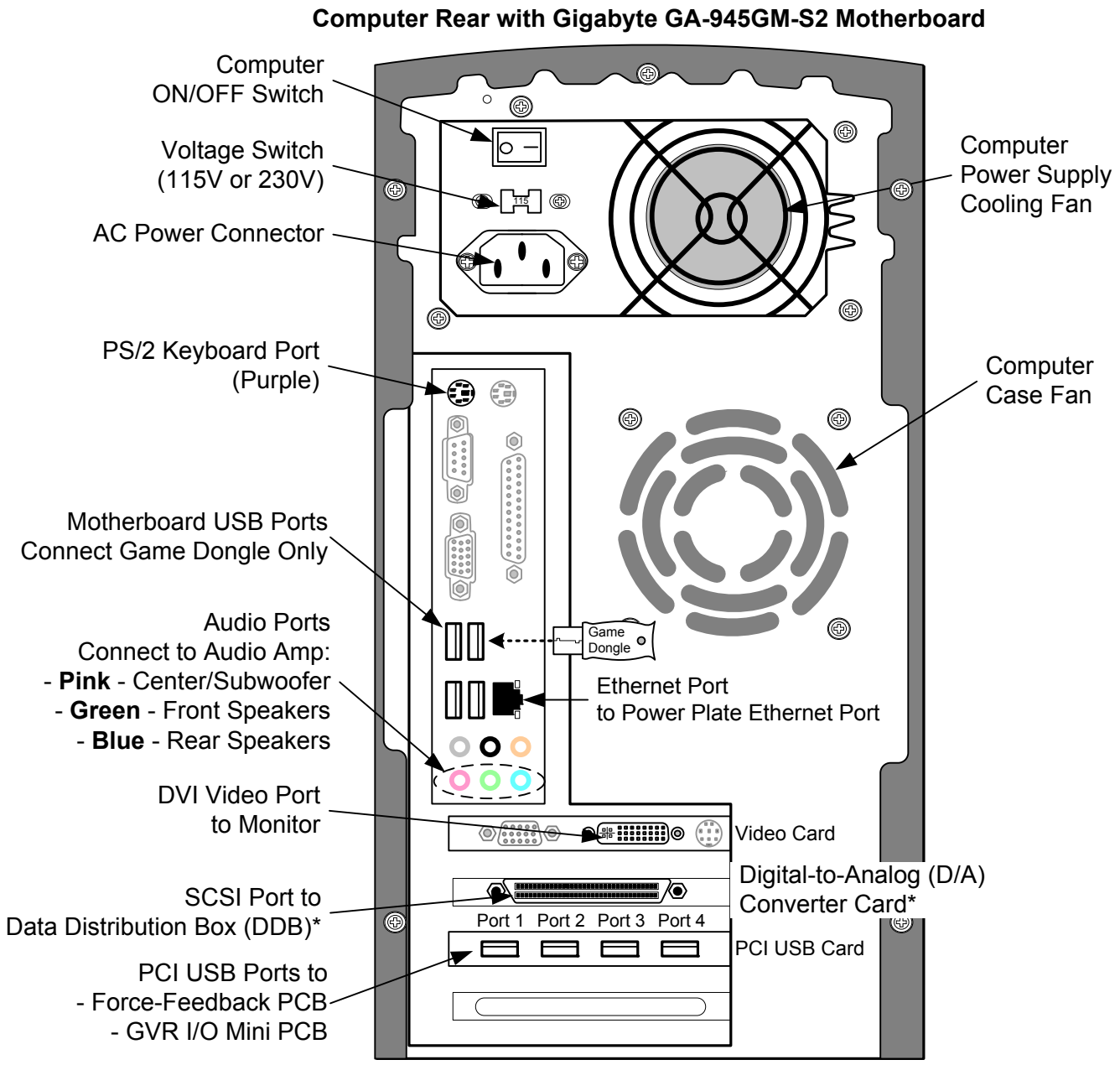


Figure 37. Detailed Wiring Diagram (GVRI/O PCB)


Computer Rear with Gigabyte GA-945GM-S2 Motherboard
Computer ON/OFF Switch
Voltage Switch (115V or 230V)
AC Power Connector
PS/2 Keyboard Port (Purple)
Motherboard USB Ports Connect Game Dongle Only
Audio Ports Connect to Audio Amp:
- Pink - Center/Subwoofer
- Green - Front Speakers
- Blue - Rear Speakers
DVI Video Port to Monitor
SCSI Port to Data Distribution Box (DDB)*
PCI USB Ports to
- Force-Feedback PCB
- GVR I/O Mini PCB
Computer Power Supply Cooling Fan
Computer Case Fan
Game Dongle
Ethernet Port to Power Plate Ethernet Port
Video Card
Digital-to-Analog (D/A) Converter Card*
Port 1 Port 2 Port 3 Port 4
PCI USB Card

***Important:** Digital-to-Analog (D/A) Converter Card **must** be in the slot next to the Video Card.

Figure 38. Computer Rear Panel

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LIMITED WARRANTY FOR EA SPORTS™ NASCAR® RACING MOTION CABINET (North America Only)

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All software and accompanying documentation furnished with, or as part of the Product, is supplied "AS IS" with no warranty of any kind except where expressly provided otherwise in any documentation or license agreement furnished with the Product.

During the warranty period, GLOBAL VR® will, at no charge, repair the Product, provided:

- Purchaser believes that the Product is defective in material or workmanship and promptly notifies GLOBAL VR® in writing with an explanation of the claim;
- All claims for warranty service are made within the warranty period;
- Products are returned adequately packed and freight prepaid to GLOBAL VR®'s designated service center;
- GLOBAL VR®'s inspection or test of the Product verifies to GLOBAL VR®'s satisfaction that the alleged defect(s) existed and were not caused by accident, misuse, neglect, unauthorized or attempted repair or testing, unauthorized modification, incorrect installation, vandalism, failure to follow the maintenance schedule or procedures; or operation in out-of-specification environmental conditions.

GLOBAL VR® will return the repaired Product freight prepaid to the Purchaser. All freight costs associated with replacement of warranty parts after expiration of the original warranty period are the responsibility of the Purchaser. GLOBAL VR® is not obligated to provide the Purchaser with a substitute unit or on-site service during the warranty period or at any time. If after investigation GLOBAL VR® determines that the reported problem was not covered by the warranty, Purchaser shall pay GLOBAL VR® for the cost of investigating the problem at its then prevailing per incident billing rate. No repair or replacement of any Product or part therein shall extend the warranty period as to the entire Product. The warranty on the repaired part shall be in effect for the remainder of the original warranty period, but will not exceed the original warranty period.

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Fax: 408.597.3437
E-mail: techsupport@globalvr.com
Website: http://service.globalvr.com
Extended Service Hours: Monday–Friday 5pm—Midnight
Saturday & Sunday 7:00am—Midnight Pacific Time

Tsunami Visual Technical Support (for Motion Base Issues)

Hours: 8:00AM–5:00PM Pacific Time, Monday–Friday
Phone: 510.661.9588
Fax: 510.661.9587
E-mail: support@tsunamivisual.com

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When you contact Technical Support, please provide the information listed below to assist the Technical Support representative in solving your problem quickly. For your convenience, space is provided to write important numbers.

- Cabinet Serial Number: _____
- Game Version (from Operator Menu): _____
- OS Version (from Operator Menu): _____
- Dongle Version (from Operator Menu): _____
- IO Board Version (From Operator Menu): _____
- Your mailing address and telephone number.
- A summary of the question or a detailed description of the problem with your cabinet.

The additional information listed below, as applicable, may assist Technical Support in solving your problem quickly.

- Specific error message
- Any changes made to the system
- Date of latest install or upgrade
- For game-play issues, the game mode and number of players

To comment on this manual, please e-mail: techpubs@globalvr.com